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## Release Notes

### Release v4.3.19 (15 items)

#### Batch Operation

TES-4676

Decreased execution time of batch tests with coverage measurement.

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*Enhancement*

#### CTE

TES-3484

Deactivate automatic tree generation for CTE documents of component tests.

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*Enhancement*

#### Compiler/Target/Microcontroller

TES-4639

New combination for Renesas RX compiler with Renesas CS+ debugger.

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*New Feature*

#### Compiler/Target/Microcontroller

TES-4644

New simulator ABIX HiperSim in conjunction with Melexis Mlx 16 compiler.

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*New Feature*

#### Compiler/Target/Microcontroller

TES-4651

The TRACE32 TESSY master supports a "Wait For TRACE32 Trigger" attribute. If the attribute is set, TESSY's master wait until the file is present before the test is run.

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*Enhancement*

#### Compiler/Target/Microcontroller

TES-4685

Updated TKS file for Microchip compiler.

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*Enhancement*

#### Driver

TES-4657

Fixed generated cast for enum variable with memory modifier.

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#### Driver

TES-4663

Module defines where not applied when a single source had a specific define.

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## Release v4.3.19 (15 items)

### Fault Injection

TES-4662

Fixed inserting fault injections in if ... else if cascades.

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### Instrumenter

TES-4656

Failed to evaluate coverage result if a case label is a character constant. (e.g. case 'U:')

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### Instrumenter

*Enhancement*

TES-4677

Static functions are considered in CPC for component test also if they are unused in the scenario interface.

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### Interface Database (IDB)

TES-4660

Fixed stack overflow when reusing test objects with recursive structures.

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### Parser

TES-4683

Fixed possible access violation with very huge structures in TESSY keyword scanner.

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### Report

TES-4654

Fixed possible race condition during report generation when many test objects used the same called function as advanced stub.

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### Test Database (TDB)

TES-4646

Possible dynamic union in report was marked "notok" if it was in a CTE tree node for a test case but actually not used in that test case.

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## Release v4.3.18 (35 items)

### ASAP Conversion

*Enhancement*

TES-3541

Added support for LINEAR keyword.

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### C++

TES-4490

Added preference option to hide namespaces and class names within the Test Project view.

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### CTE

*Enhancement*

TES-2142

TESSY will now update the CTE root name with the test object name when opening a CTE document in TESSY. Please note: The respective test object needs to be executed again to reflect the updated name within the test report.

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## Release v4.3.18 (35 items)

### CTE

TES-4617

Fixed association with wrong interface elements when advanced stubs are present in the interface of a test object. It is recommended to verify CTE documents since erroneous behavior cannot be detected by TESSY. Suspicious are missing attachments or attachments to interface elements on generated nodes which describe advanced stub calls. This error was introduced with TESSY v4.3.16 and is present also in TESSY v4.3.17.

### CTE

TES-4630

Fixed omitted test data for array elements in complex union structures.

### Compiler/Target/Microcontroller

*New Feature*

TES-4562

Added new IAR RISC-V compiler with IAR C-Spy/cspybat.

### Compiler/Target/Microcontroller

*Enhancement*

TES-4589

Target handler for Microchip API was updated to support new SAM devices.

### Compiler/Target/Microcontroller

*New Feature*

TES-4606

Added support for TI ARM CLANG compiler with TI Code Composer Studio.

### Compiler/Target/Microcontroller

*Enhancement*

TES-4610

Created legacy version of IAR IDB Makefile due to incompatible compiler option between newer and older versions.

### Compiler/Target/Microcontroller

TES-4613

Fixed TEE attribute ExeFile Extension for Freescale MPC with CodeWarrior 10.

### Compiler/Target/Microcontroller

*Enhancement*

TES-4625

Implemented support for "Resource List" attributes within attribute Slave Call.

### Compiler/Target/Microcontroller

TES-4633

Fixed scanner call for Melexis compiler.

### Coverage Measurement

TES-4609

Fixed the total and reached number of statements displayed within the C0 statement coverage TXT reports. The statement coverage values themselves were calculated correctly.

### Defines

TES-4319

Fixed missing defines if a comment is present. [e.g. #define VALUE 1 /\* comment \*/]

## Release v4.3.18 (35 items)

### Defines

TES-4632

32 bit define Values with suffix 'L' were calculated with 16 bit width for 16 bit compilers.

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### Driver

TES-4603

Generate defines for test object parameter names to user definitions.

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### Driver

TES-4604

Fixed generated code to get / set targets of advanced stub pointers.

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### Driver

TES-4636

Tests were aborted when the time loading interface database in the master exceeds the time the slave waits for an established communication.

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### Driver

TES-4637

Fixed generated type name for \_\_int24 and \_\_uint24 for Microchip XC8.

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### Environment Editor (TEE)

*Enhancement*

TES-4623

Remember the column width in the Attributes View when switching to a different environment in the Environment Editor.

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### Fault Injection

TES-4645

Fixed missing include of user declarations in case of fault injections being present.

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### Import/Export

TES-4605

Set passing direction of advanced stub pointers to the passing direction of the target when importing test data.

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### Instrumenter

TES-4614

Fixed parsing type declaration with missing space between key word and curly brace (e.g., enum{...}).

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### Instrumenter

TES-4624

Fixed zero coverage values for extern "C" functions inside a namespace.

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### Instrumenter

TES-4647

A possibly incorrect case label in the coverage report has been fixed.

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### Interface Assigner (IDA)

TES-4471

Show constants used in test data that are not in global variables.

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## Release v4.3.18 (35 items)

### Parser

TES-4607

Added long double to IAR MSP430 type table file.

*Enhancement*

### Preprocessing

TES-4538

Updated TKS file for Melexis compiler.

*Enhancement*

### Preprocessing

TES-4539

Fixed Wind River TKS template file concerning reducing empty lines.

*Enhancement*

### Preprocessing

TES-4598

Updated several key words in TKS template file for IAR.

*Enhancement*

### Report

TES-4649

Added wrapping of long test object and variable names within the test details and test overview reports.

### Save/Restore Database (TMB Files)

TES-4621

Fixed problems with overwritten module attributes when restoring TMB files.

### Script Editor

TES-4619

Added preference option to write script files separately for each test item during database backup.

### Test Database (TDB)

TES-4608

Possibly missing historical test data has been fixed.

### Test Database (TDB)

TES-4618

Fixed potential deadlock if an error occurs when committing to the test database.

## Release v4.3.17 (39 items)

### Batch Operation

TES-4528

Fixed reading "Report Classification" and "Expand Attributes" report options from batch operation XML file.

### C++

TES-4542

Fixed possible assertion in parser when comparing declarations from different source files.

## Release v4.3.17 (39 items)

### C++

TES-4573

A wrong cast with erroneous namespace was possibly generated for an enum that is used in as class member but is declared inside another class in a different namespace.

### CTE

TES-4525

Fixed memory leaks in the CTE.

### CTE

TES-4544

Fixed the blue "data-assigned" indicator in CTE that was not working for overwritten values.

### CTE

TES-4575

Improved error message the CTE produces when no index range is found for a node associated with array elements.

### CTE

TES-4590

CTE-179 Meta information can be seen and manipulated in the Properties view. The default text of comments shows variable usage to show this information in comments.

CTE-568 The type of a mark can be changed in "circle", "square" and "triangle". There is no special handling behind types. Their purpose is for documentation and user defined workflows.

CTE-584 Fixed that the change of width of test table name column moves the sub trees in refinements correctly.

*Enhancement*

### CTE

TES-4591

CTE-582 Newly created CTE nodes will be in quick edit mode for the name.

*Enhancement*

### Command Line (tessycmd)

TES-4515

The save-db action from the TESSY command line will now include tasks inside a project, test collection or folder.

*Enhancement*

### Compiler/Target/Microcontroller

TES-4479

New combination for TASKING SmartCode with PLS UDE.

*New Feature*

### Compiler/Target/Microcontroller

TES-4504

Added TEE environment for KungFu32 emulator.

*New Feature*

### Compiler/Target/Microcontroller

TES-4533

Start with predefined path for winIDEA.

*Enhancement*

### Compiler/Target/Microcontroller

TES-4551

Updated IAR preprocess option for latest IAR compiler version.

## Release v4.3.17 (39 items)

### Compiler/Target/Microcontroller

*Enhancement*

TES-4559

Add new TEE attribute "Break At First Address" for gdb master.

### Compiler/Target/Microcontroller

*New Feature*

TES-4567

New OCD target debugger for Xtensa GCC.

### Coverage Measurement

*Enhancement*

TES-4523

Now functions from files on "Header File Exclude List" will not be instrumented for call trace and coverage measurement any more.

### Coverage Measurement

TES-4545

Fixed error when calculating MCC coverage totals on module level in the rare case of huge numbers of condition combinations, resulting in integer overflows.

### Coverage Viewer (CV)

TES-4587

Fixed exception when no test object was selected and the "Show Coverage" toggle button was pressed within the "Called Functions" view within the coverage viewer (CV).

### Defines

TES-4527

Fixed parsing of a macro with another macro as value which is defined in another source file in the same module.

### Driver

TES-4511

Fixed generated code for advanced stub with const pointer parameter.

### Driver

TES-4550

Fixed possible name conflict when a test object parameter a stub function parameter and a struct member have the same name.

### Driver

TES-4554

Fixed error in test driver when a dynamic object was created from another dynamic object in a different memory location.

### Driver

TES-4555

Fixed error in test driver when an untyped enum inside a struct has pass direction IN.

### Driver

TES-4582

Fixed generating code for a static @far function returning pointer to @far memory. (Cosmic Compiler)

## Release v4.3.17 (39 items)

### Instrumenter

TES-4512

Fixed syntax error in instrumented code when a casted tag type is returned and call pair coverage is active [e.g. `return (enum E) value;`]

### Instrumenter

TES-4524

Fixed possible incorrect C0 coverage when there are superfluous curly braces around the function body [e.g. `int test() {{... return 42;}}`]

### Instrumenter

TES-4586

Fixed erroneous calculation of total branches for branch (C1) coverage in case of mixed arithmetic and logical expressions (which will not be instrumented for coverage measurement, e.g. code like `"variable += (a ? 1 : (b == 1 || c == 2) << 4);"`). As a result, it was not possible to reach 100% branch coverage in such cases.

*Enhancement*

### Interface Assigner (IDA)

TES-4546

Fixed error when a C function is assigned to a C++ method.

### Interface Database (IDB)

TES-2212

Reduced high consumption of memory by interface database in case of huge structures being used.

*Enhancement*

### Interface Database (IDB)

TES-4503

Fixed handling of parameter that is a pointer to an array

### Interface Database (IDB)

TES-4535

Fixed handling of triple pointer (`struct str ***variable`).

### Parser

TES-4568

Add support to handle C99 variable length arrays. [e.g. `int Test (int size, int array[][size])`]

### Parser

TES-4577

Fixed wrong caption of path components on drives without 8.3 support

### Parser

TES-4578

Use Compiler Install Path as default value for Header File Exclude List.

*Enhancement*

### Parser

TES-4583

Fixed erroneous function interface database if structures with indirect recursion are present.

*Enhancement*



**Release v4.3.17 (39 items)****Report***Enhancement*

TES-4469

Changed placement of optional report classification: Now centered within the footer of the report.

**Scenario Editor (SCE)***Enhancement*

TES-4019

Allow non-void functions to be set as Work Task for component testing.

**Test Data Editor (TDE)***Enhancement*

TES-4536

Enhanced tooltips for values.

**Test Data Editor (TDE)**

TES-4588

Allow setting \*\* to array of valid type.

**Release v4.3.16 (27 items)****C++**

TES-4467

Code to get/set members for a dynamic class was not generated when the class pointer is the component of a dynamic struct.

**C++**

TES-4482

Fixed error in generated test driver when a destructor was stubbed.

**CTE***Enhancement*

TES-4395

Add new Feature "Update names of nodes with attached interface elements" before this feature only nodes attached to global interface elements with a dictionary entry are updated.

This feature is deactivated per default which will change in TESSY Release 5.1

**CTE***Enhancement*

TES-4425

The index in the last row of a CTE node attached to an array element is now allowed to be solely an index. Before that change an identifier had to be before the index.

**CTE**

TES-4493

Fixed CTE documents of variants are updated although marked read only.

**CTE**

TES-4505

Fixed that generated CTE nodes linked to an obsolete passing were not deleted.

## Release v4.3.16 (27 items)

### CTE

TES-4507

Fixed an issue where automatic updates on generated CTE trees were not saved if the user did not make any other modifications.

### CTE

TES-4508

Fixed an issue where the CTE update algorithm does not find already attached CTE nodes.

### Command Line (tessycmd)

TES-4487

tessycmd get-attribute now expands file or folder attributes.

### Compiler/Target/Microcontroller

*New Feature*

TES-4405

New combination for Xtensa CLANG compiler with SEGGER J-Link (gdbserver) debugger.

### Compiler/Target/Microcontroller

*New Feature*

TES-4431

New combination for Renesas RL78 compiler with e2 studio debugger.

### Compiler/Target/Microcontroller

*Enhancement*

TES-4466

Updated Atollic compiler type table.

### Compiler/Target/Microcontroller

*Enhancement*

TES-4480

Added updated PLS UDE API DLL..

### Driver

TES-4492

Pattern Test was not working with targets using file communication.

### Environment Editor (TEE)

TES-4039

Implemented "Show Differences" button for the TEE when displaying multiple environments.

### Import/Export

*Enhancement*

TES-4006

Added importing and exporting fault injections to Excel import/export.

### Instrumenter

TES-4488

Fixed an access violation when instrumenting a declaration that spans multiple lines and contains preprocessor line information.

### Notes View

*Enhancement*

TES-2455

The notes view contents can now be exported as Excel XLSX format.

## Release v4.3.16 (27 items)

### Notes View

*Enhancement*

TES-3390

Added "Find" menu entry to select the source element for a note within the Test Project view. Also fixed wordings and layout and added some shortcuts.

### Report

*Enhancement*

TES-3448

Added UUID, specification and description into requirement coverage report.

### Requirements

TES-4470

Bugfix for ReqIF import from JIRA containing empty XHTML elements.

### Save/Restore Database (TMB Files)

*Enhancement*

TES-4494

Include a module in the automatic module backup before shutdown if one of its test items has been included in or excluded from test execution.

### Scenario Editor (SCE)

TES-4484

Fixed that static local variables were selectable in the mode variable combo box.

### Script Editor

*Enhancement*

TES-2731

The module name is now suggested as file name in the script editor save dialog.

### Test Execution

*Enhancement*

TES-4497

Add attribute to retry execution if the execution timeout has been reached.

### Variant Management

TES-4468

Fixed possible incorrect assignment of test cases to a fault injection when creating a variant.

### Variant Management

TES-4478

Fixed an error when overwriting values in arrays in a variant if the array size differs.

## Release v4.3.15 (55 items)

### C++

TES-4304

Fixed failing instrumentation for functions with same name in same namespace.

### C++

TES-4417

Fixed error in test driver when constructor parameter is a reference to a template that uses a pointer as type.

## Release v4.3.15 (55 items)

### CTE

*New Feature*

TES-3788

Added feature "Update generated tree based on interface changes". Activate this feature in "Preferences" > "CTE" > "Tree Generation" > "Update generated tree based on interface changes". The CTE document will then be updated with elements not present in the actual tree but in the generated tree.

Changes to a previously generated tree can be detected only if the node elements are still attached to the respective interface element.

### Command Line (tessycmd)

*Enhancement*

TES-4394

Added a command line option for tessyd to skip module analysis when running tests in headless mode. This mode can also be activated by setting a Windows environment variable TESSY\_SKIP\_MODULE\_ANALYZE=1.

### Compiler/Target/Microcontroller

TES-4299

Fixed Melexis IDB Makefile regarding include headers.

### Compiler/Target/Microcontroller

TES-4313

Fixed asm parser error in Melexis TKS file.

### Compiler/Target/Microcontroller

TES-4329

Fixed Debugger Launch Path for TASKING VX.

### Compiler/Target/Microcontroller

*Enhancement*

TES-4334

Added CLANG parser support for TI TMS 320C6000.

### Compiler/Target/Microcontroller

*Enhancement*

TES-4335

Add CLANG support for Analog Devices CrossCore Blackfin compiler.

### Compiler/Target/Microcontroller

*Enhancement*

TES-4336

Updated configuration for default Keil installation path.

### Compiler/Target/Microcontroller

*Enhancement*

TES-4379

Added multicore support for winIDEA.

### Compiler/Target/Microcontroller

TES-4392

Fixed Xtensa compiler Id.

### Compiler/Target/Microcontroller

*New Feature*

TES-4402

New compiler TASKING SmartCode TriCore with TASKING SmartCode Debugger.

## Release v4.3.15 (55 items)

### Compiler/Target/Microcontroller

*Enhancement*

TES-4419

Added support for EFM8 processors to the uVision adaption.

### Compiler/Target/Microcontroller

*Enhancement*

TES-4421

Added type `_Bool` to TMS 320C6000 type table.

### Component Test

TES-4388

Variable `TS_CURRENT_TIMESTEP` was not visible in fault injection code.

### Defines

TES-4345

Fixed define directive concerning ARM V5 compiler occurring during analyze.

### Driver

*Enhancement*

TES-3162

New Attribute 'Generate Defines Exclude List'. One or more defines can be specified that are not generated to the test driver file.

### Driver

TES-4106

A wrong cast was generated for pattern test when setting the pattern to a function pointer with const pointer parameter.

### Driver

TES-4281

Fixed Pattern Test

- Pattern Test code was generated for some variables that are not allowed to be used for Pattern Test.
- Pattern Test is applied to local static variables but in TIE 'Apply Pattern = No' was displayed.

### Driver

TES-4322

Dynamic objects where possibly set in wrong order for test object in modules with multiple source files.

### Driver

TES-4328

Fixed omitted parameter names in stub functions when 'Simplified Headers' are active.

### Driver

TES-4333

User defines where unknown in Fault Injection code.

### Driver

TES-4342

Generated test object call was invalid when a parameter is a typedef inside a template class.

## Release v4.3.15 (55 items)

### Driver

TES-4343

Erroneous code was generated for IRRELEVANT class member variables.

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### Driver

TES-4347

Evaluate test data other than class members when an exception is thrown during constructor test.

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### Driver

TES-4374

Fixed error in generated driver if the test object parameter is a reference to a const pointer.

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### Driver

TES-4378

Fixed possible conflicts with stubbed functions and macros with equal name.

---

### Driver

TES-4400

Advanced stub variables were not set or evaluated in test driver for a new test object if the user has not actively changed the interface.

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### Driver

TES-4410

Fixed possible error in driver with multiple source files when a static variable has the same name as a used struct component.

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### Environment Editor (TEE)

TES-3936

An error message will now be displayed, when saving of the TEE configuration fails due to missing write permissions of the configuration file.

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### Environment Editor (TEE)

TES-4129

Renaming project environments will now be propagated to the modules using these environments.

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*Enhancement*

### Environment Editor (TEE)

TES-4236

The names and values of selected attributes can now be copied to the Windows clipboard using the context menu.

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*Enhancement*

### Environment Editor (TEE)

TES-4397

Don't show empty groups in the Attributes View when a filter is active.

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### Environment Editor (TEE)

TES-4420

Use the Add-Includes-Dialog from the module properties also within the TEE.

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*Enhancement*

## Release v4.3.15 (55 items)

### Environment Editor (TEE)

TES-4446

If only flags of attributes were changed, a restart of TESSY was required to make them visible within the module properties.

### Environment Editor (TEE)

TES-4451

Emit warnings only, if invalid environments are available within the configuration.xml file (which will be skipped while loading the configuration).

### Instrumenter

TES-4399

Fixed instrumentation problem with 'for' loops when qualified data types (e.g. `std::vector<int>::size_type`) were used within the initialization part of the loop.

### Interface Database (IDB)

TES-4353

Changing type declarations inside an anonymous union required a manual interface reuse although an automatic reuse was possible.

### Interface Database (IDB)

TES-4393

If a variable or function was moved from unused to used and after module analysis the only interface change for a test object was a rename of this variable/function it was removed from the interface without triggering an interactive reuse.

### Interface Editor (TIE)

TES-4229

Add collapse button and filter to hide unstubbed functions and undefined variables in Test Interface Editor.

*Enhancement*

### Interface Editor (TIE)

TES-4409

Advanced Stub Variables were displayed IRRELEVANT when the test object was a static class member function.

### Mutation Test

TES-4411

The mutation parser failed if a preprocessor statement is inside a condition.

### Parser

TES-4340

Fixed missing reuse being triggered when only the component name of a struct was changed.

### Report

TES-4351

Added new report option "Report classification": The text will be printed into the footer of each report if not empty (e.g. "Restricted" or "Confidential" may be printed as report classification).

*Enhancement*

## Release v4.3.15 (55 items)

### Report

*Enhancement*

TES-4352

Added "Expand attributes" test report option: This will expand all placeholders contained within the attribute values.

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### Report

TES-4372

Target of pointer to pointer was missing in report if the target had a different pass direction than the pointer.

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### Report

TES-4444

Fixed importing unions from report XML files.

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### Save/Restore Database (TMB Files)

TES-4387

Metrics were missing at test objects with changed interface after restoring a backup.

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### Script Editor

*Enhancement*

TES-4370

Show line numbers by default in text editors.

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### TESSY (General)

*Enhancement*

TES-4408

Reduced size of generated tks.exe files.

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### Test Data Editor (TDE)

TES-4339

TESSY terminated when expressions were used in dynamic objects and the Test Results View was opened.

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### Test Execution

*Enhancement*

TES-4133

Added menu entry 'Debug Test' which executes the test with the 'Define Breakpoint' option set.

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### Test Execution

TES-4338

Fixed test execution for MATLAB models (an error was introduced with TESSY v4.3.14).

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### Test Execution

*Enhancement*

TES-4416

Clear console before analyzing modules or checking sources if "Clear console and problems view" is enabled in the test execution settings.

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## Release v4.3.14 (30 items)

### Batch Operation

TES-4249

Fixed possible stuck of multiple tests under high system load.

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## Release v4.3.14 (30 items)

### C++

TES-4253

Fixed missing return type in stub code methods for constructors.

### C++

TES-4274

Fixed setting break point at TESSY\_TestobjectCall for C++ compilers that modify the function name with name mangling.

### C++

TES-4280

Erroneous namespace was generated for method stubs, when the namespace contains a class with the same name as the namespace.

### C++

TES-4283

Fixed parser error if template class with recursion pointers are used. [e.g. json template library]. To activate this you need to add '-TES-4283' to the Parser options attribute or change the parser call in your IDBMake Makefile file.

### C++

TES-4284

Fixed failing instrumentation for functions with the name that exists in multiple namespaces.

### C++

TES-4290

Fixed generating stubs for functions in anonymous namespace.

### CTE

TES-4243

Fixed error message if CTE node cannot be attached to associated array index nodes.

### Command Line (tessycmd)

TES-4256

New command line option --disable-autoreuse for TESSYD to disable that test objects with changed interfaces are executed.

*Enhancement*

### Compiler/Target/Microcontroller

TES-4161

Updated configuration for Melexis adaption.

### Compiler/Target/Microcontroller

TES-4228

New adaption for KungFu32 compiler and KungFu32 GDB server.

*New Feature*

### Compiler/Target/Microcontroller

TES-4273

Updated the Renesas GDB server adaption. Separated Renesas simulator and Renesas emulator, which will be easier for the customer to configure.

*Enhancement*

## Release v4.3.14 (30 items)

### Compiler/Target/Microcontroller

**Enhancement**

TES-4277

Updated IAR ARM V5 Makefile template, improved the handling of board files.

### Compiler/Target/Microcontroller

**Enhancement**

TES-4291

CodeWarrior plugin can now start the debugger automatically if required.

### Driver

TES-3273

When generating a test driver with many dynamic objects of huge structures driver32.exe was possibly running out of memory.

### Driver

TES-4266

Fixed possible conflicts of user defines and parameter declarations from slave header files.

### Import/Export

**New Feature**

TES-4272

Added import of test details report XML files into test objects.

### Interface Assigner (IDA)

TES-3167

Copy fault injections when assigning test objects in IDA.

Change function name in fault injections branch path, when the name of a called function changes.

### Interface Assigner (IDA)

TES-4250

Fixed error when assigning a pointer parameter that changed to an array and the legacy parser was used.

### Interface Assigner (IDA)

TES-4267

Fixed assigning renamed test object that already had a changed interface before.

### Interface Database (IDB)

**Enhancement**

TES-4217

Added an option to create a simplified interface for struct/union with a very large number of components. Without this the parser runs out of memory while building the interface database. The new attribute 'Simplified Header Folder List' may be used to specify a comma separated list of directories. If inline functions are located in a header file residing in such a folder, the parser uses simplified tag type object for these functions. These functions can not be used as test objects and advanced stubs can not be used.

### Interface Editor (TIE)

TES-4288

Arrays set to IRRELEVANT where displayed as UNDEFINED.

### License Manager

TES-4278

Fixed taking into account TESSYD\_CI\_LICENSE\_FLAGS environment variable.

## Release v4.3.14 (30 items)

### Report

*Enhancement*

TES-4279

Show enums used in test data in the test object interface.

### Requirements

TES-4287

Update last modified date for modules, test objects, tasks and test cases also when requirement linking has changed.

### Script Editor

TES-4065

Support '\*' in method signature for call trace in scripts.

### Script Editor

TES-4262

Sort work tasks alphabetically in Script Editor.

### Test Data Editor (TDE)

TES-3943

After discarding changes in TIE the changes where not saved but still displayed in the GUI.

### Test Data Editor (TDE)

TES-4251

Fixed error when entering the test object itself as function pointer target at void\*.

### Variant Management

TES-4245

Fixed that a CTE file must not be generated in a variant for a test object without a CTE file.

## Release v4.3.13 (30 items)

### ASAP Conversion

TES-4189

Fixed reading ASAP information for parameter in source files without global variables.

### ASAP Conversion

*Enhancement*

TES-4191

Apply conversion also for testing of MATLAB models.

### ASAP Conversion

*Enhancement*

TES-4226

Also apply ASAP Conversion to function return when the attribute 'Enable ASAP Parameter' is true. The functions name is used for the conversion rule.

### C++

TES-4218

Fixed parser error if a method gets a pointer of its class and accesses a member of a base class by that pointer.

## Release v4.3.13 (30 items)

### C++

TES-4234

Fixed evaluation of class member targets when Attribute 'Generate Constructors' is false.

### CTE

TES-4060

CTE images will be generated during report generation and not during test execution.

*Enhancement*

### Compiler/Target/Microcontroller

TES-3186

New combination for Renesas RX with GDB server (SEGGER).

*New Feature*

### Compiler/Target/Microcontroller

TES-4115

New combination Xtensa simulator with Xtensa CLANG compiler.

*New Feature*

### Compiler/Target/Microcontroller

TES-4192

Fixed Wind River WindISS server script.

### Compiler/Target/Microcontroller

TES-4203

New compiler Wind River ARM with Wind River WindISS simulator.

*New Feature*

### Compiler/Target/Microcontroller

TES-4219

Fixed tthd shutdown problem.

### Compiler/Target/Microcontroller

TES-4227

Added `_Static_assert` to the HighTec TKS file.

*Enhancement*

### Coverage Viewer (CV)

TES-4231

The coverage viewer (CV) as well as the statement/branch C0/C1 coverage reports will now show line numbers and source file contents also for inline functions within source files.

*Enhancement*

### Defines

TES-4212

Improved performance of defines parser.

*Enhancement*

### Driver

TES-4101

Stub code for local functions and C++ methods is generated to an own function at the end of a source file to avoid errors due to not declared types or variables at the location of the stubbed function.

*Enhancement*

## Release v4.3.13 (30 items)

### Environment Editor (TEE)

TES-4232

Some compiler/target specific path settings that were overwritten within the internal configuration hierarchy were not shown as factory values within project environments (e.g. "Compiler Install Path" for "Wind River Tricore/Wind River WindISS" environment).

---

### Import/Export

TES-4193

Fixed export of anonymous union member values for legacy parser.

---

### Instrumenter

TES-4210

Failed to instrument function declared extern "C" and used as friend in a class.

---

### Interface Editor (TIE)

TES-4135

Pass direction of non-static class member variables is always IRRELEVANT for static methods, since they can not be accessed by the method.

---

### Mutation Test

TES-4213

Fixed instrumentation error for return statements like this: "return (STRUCT) {.Member=42};".

---

### Parser

TES-4023

Fixed possible incomplete structs in Interface Database when a module contains multiple source files where in one source a struct was declared abstract only.

---

### Parser

TES-4208

Fixed GNU Tools for ARM TKS template file concerning asm.

---

### Parser

TES-4211

Fixed collecting source files information for cygwin environments.

---

### Parser

TES-4230

Updated TKS GNU ARM file.

---

*Enhancement*

### Parser

TES-4242

Fixed parsing alignas specifier.

---

### Test Data Editor (TDE)

TES-4104

Fixed error when entering the test object itself as function pointer target.

---

## Release v4.3.13 (30 items)

### Test Data Editor (TDE)

TES-4235

Fix exception when searching partitioned arrays in TDE using "Find Value".

---

### Test Database (TDB)

TES-4204

Verification of test data was possibly interrupted by a NumberFormatException.

---

### Variant Management

TES-4202

Fixed test data verification of constants inside namespace during synchronization.

---

### Variant Management

TES-4216

Fixed evaluation of expressions using defines in variant modules.

---

## Release v4.3.12 (20 items)

### Compiler/Target/Microcontroller

*Enhancement*

TES-4059

Updated IAR TKS files regarding anonymous unions.

---

### Compiler/Target/Microcontroller

*Enhancement*

TES-4084

Added static\_assert rule to IAR TKS file.

---

### Compiler/Target/Microcontroller

TES-4154

Fixed special IAR number support.

---

### Compiler/Target/Microcontroller

TES-4168

Fixed master script for the MetaWare debugger.

---

### Compiler/Target/Microcontroller

TES-4179

Fixed problem concerning e2studio startup.

---

### Component Test

TES-4132

A scenario containing only an INIT time step was marked as passed although containing failed eval macros.

---

### Driver

TES-4150

Fixed generating driver for test objects with indirect recursive call.

---

## Release v4.3.12 (20 items)

### Driver

TES-4162

Improved performance generating C++ test driver for modules containing large amounts of external classes.

### Environment Editor (TEE)

TES-4184

Optimized saving of configuration in case of many enabled compiler/target environments.

### Interface Assigner (IDA)

TES-3494

New dialog to move variables and functions that are not in the test objects initial interface to it.

*Enhancement*

### Interface Assigner (IDA)

TES-4171

Fixed exception when double clicking a test object in the IDA perspective while a Compare View for its module is active.

### Interface Database (IDB)

TES-4144

Fixed finding and assigning applicable unnamed enums during compare/reuse.

### Mutation Test

TES-4181

Fixed a compilation error when building the test driver for mutation tests if the test object uses a sizeof operator for an expression that is not guarded with parens. [e.g. if (sizeof array / sizeof array[0] > 10)]

### Parser

TES-4155

Updated Green Hills TKS files.

*Enhancement*

### Parser

TES-4177

Fixed parsing of @-operator in tks-freescale.tpl

### Parser

TES-4185

Fixed TKS file for Freescale compiler.

### Variant Management

TES-4153

Fixed setting initial pass direction of advanced stub variables in variant module when synchronizing with parent.

### Variant Management

TES-4157

Fix importing test data for variant test objects when using the "Overwrite existing test cases" option.

## Release v4.3.12 (20 items)

### Variant Management

TES-4167

When synchronizing a variant module use of IDA was always required if the interface contained a structure with a recursive pointer.

### Variant Management

TES-4176

Fixed a null pointer exception when synchronizing a module, if the parent module uses expressions as test data for an interface object with passing direction IRRELEVANT in the variant module.

## Release v4.3.11 (71 items)

### ASAP Conversion

TES-3979

Allow ASAP Conversion for parameters by setting attribute 'Enable ASAP Parameter' true. The parameter name should be unique, otherwise the conversion rule is applied to all parameter and global variables with this name.

*Enhancement*

### Batch Operation

TES-3356

Apply report logo image and template path from TBS file when executing a batch test.

### C++

TES-4029

Generate consistent script names for C++ test objects.

### C++

TES-4045

Fixed an incorrect interface database when using a structure declared inside a class as a parameter of a template function.

### C++

TES-4047

Fixed resetting advanced stub variables after a test object was called from the test objects class constructor.

### C++

TES-4114

Added feature to optionally create C++ singleton class constructors manually triggered by TEE attribute.

*Enhancement*

### CTE

TES-3789

The classification tree generation now considers variables with ASAP information available. Class nodes with physical values for minimum and maximum will be created in any case. For unsigned values a node for a mean value will be calculated and for signed values nodes for physical representation of -1, 0 and 1 will be created if they match the defined ASAP range.

*New Feature*

### CTE

TES-4050

Fix indirectly called methods are not generated in the called functions sub tree of the automatic CTE document.



## Release v4.3.11 (71 items)

### CTE

TES-4055

Fixed that test sequences in migrated CTE documents were not correctly synchronized.

### CTE

TES-4073

TESSY prevents now that copied test projects with custom folder layout get inconsistent CTE documents.

### Compiler/Target/Microcontroller

*New Feature*

TES-1729

New combinations for NXP S32 (GNU Toolchain for PowerPC) with iSYSTEM winIDEA and P&E GDB Server for Power devices.

### Compiler/Target/Microcontroller

TES-3751

Added --cpu to compiler and pre-processor call for IAR ARM V5.

### Compiler/Target/Microcontroller

TES-3771

Updated tks\_tasking\_c166.h.

### Compiler/Target/Microcontroller

*Enhancement*

TES-3779

Updated several TASKING Makefile templates.

### Compiler/Target/Microcontroller

TES-3923

The CLANG analyzer for Renesas RX compiler is now the default.

### Compiler/Target/Microcontroller

*Enhancement*

TES-4008

Added support for Microchip J-32 debug probe.

### Compiler/Target/Microcontroller

*Enhancement*

TES-4028

Updated communication interface to UDE target (AtsUdeInterface.dll to version 4.2.0.1).

### Compiler/Target/Microcontroller

*Enhancement*

TES-4136

Implemented optional restart of uVision between test object tests.

### Coverage Viewer (CV)

TES-4032

Fixed Coverage Viewer initialization being triggered unnecessarily.

### Driver

TES-3295

UTF-8 byte order marks at the beginning of a source file will now be removed when generating the test driver.

## Release v4.3.11 (71 items)

### Driver

TES-3946

Moved position of User Code Definitions in test driver.

Pointer targets defined in User Code Definitions must not be declared in User Code Declarations section anymore.

That was possibly resulting in a compiler error in tests with more than one source file, if a type not known in all source files was used in the declaration.

### Driver

TES-4035

Fixed generated driver to not set const struct member in Pattern Test.

### Environment Editor (TEE)

TES-3828

Implemented show overwritten button for the TEE.

*Enhancement*

### Environment Editor (TEE)

TES-3948

Added preference option to disable dialog for environment configuration errors.

*Enhancement*

### Environment Editor (TEE)

TES-3986

Fixed problems with URL type attributes within TEE.

### Environment Editor (TEE)

TES-4041

Fixed TEE's multiline attributes.

### Environment Editor (TEE)

TES-4138

Added more attributes being editable on "All Environments" level (e.g. "CMSIS Path").

### Instrumenter

TES-3973

If a static local variable of a tag type declared only in the function under test was used, then with call pair coverage (CPC) measurement turned on, the generated driver was syntactically incorrect.

### Instrumenter

TES-4034

The possible absence of the ';' after a break statement resulted in a non-executable test with call pair coverage (CPC) enabled.

### Instrumenter

TES-4054

Fixed incorrect instrumentation of an expression that uses a pointer to array cast (e.g. (char (\*)[42]) NULL == variable).

## Release v4.3.11 (71 items)

### Instrumenter

TES-4056

If call pair coverage (CPC) is enabled, the "Instrumentation Exclude List" attribute was not handled correctly and resulted in a lower C1/C2 coverage measurement result than actually achieved being reported.

### Instrumenter

TES-4131

New Attribute 'Instrumenter Consider Hide Functions'

If set to true the source files marked with 'Hide Functions' are excluded from instrumentation.

*Enhancement*

### Interface Assigner (IDA)

TES-2513

In module reuse the test object specific stub settings of a called function with a changed name were not assigned when the calling testobjects name changed and it was assigned before the called functions.

### Interface Assigner (IDA)

TES-3518

Fixed "Find Previous Unassigned".

### Interface Assigner (IDA)

TES-4123

Abort reuse if an error occurred when assigning any of the funtions of a module.

### Interface Database (IDB)

TES-4099

Fixed possible file access error on a CI System running with full load and with security software running in background.

### Interface Database (IDB)

TES-4120

Automatic reuse of test objects where a constant of an enum parameter/return of a called function changes.

### Makefile Templates

TES-4083

Fixed communication Makefile for PLS UDE / TI TMS 570.

### Mutation Test

TES-3814

Disregard "Execution Timeout" attribute for mutation tests.

### Mutation Test

TES-3911

Calculate mutation score for test objects with failed execution.

*Enhancement*

### Parser

TES-4105

Fixed handling IAR localized integer format.

## Release v4.3.11 (71 items)

### Project Handling

TES-4072

Do not require modules to be analyzed again after editing unrelated project settings.

---

### Report

TES-4098

Fixed generating overview report for not executed component tests.

---

### Requirements

TES-3939

Bugfix for ReqIF import with test mean mapping and empty values.

---

### Requirements

TES-4025

Bugfix to enable the creation of a requirement document hierarchy again.

---

### Save/Restore Database (TMB Files)

TES-2334

Save notes for component tests during database backup.

---

### Scenario Editor (SCE)

TES-4097

Fixed error during (automatic) reuse of a Component Test from older versions of TESSY due to remnants of deleted time steps in the test database.

---

### Script Editor

TES-3408

Support '~' operator in script expressions.

---

### Script Editor

TES-3894

Write fault injection test cases in script.

---

### Script Editor

TES-3941

Improve formatting of evaluation macros in scripts.

---

### Script Editor

TES-4071

Correctly recognize inactive union components as interface variables in Script Editor.

---

### TESSY (General)

TES-2540

Add context menu to "Test Directory" section in Properties View.

---

*Enhancement*

### TESSY (General)

TES-3246

Add notice that description, specification and comment for folders and test collections are not included in database backup.

---

*Enhancement*

## Release v4.3.11 (71 items)

### TESSY (General)

*Enhancement*

TES-3479

Support key binding "Ctrl+A" in code editors.

### TESSY (General)

TES-3952

Updated the windIDEA OBTI connection.

### TESSY (General)

TES-4011

Fix error message "Entity does not exist" when updating the Test Data Editor or Test Definition View.

### TESSY (General)

TES-4061

Expand modules bypassing analyze when using "Find" command on test objects in Status Dialog or Problems View.

### TESSY (General)

TES-4066

Show error message when attempting to analyze modules containing test objects with names longer than 1024 characters.

### TESSY (General)

*Enhancement*

TES-4122

Improvements to test object filter:

- Improved performance of the filter dialog for large projects.
- The filter can only be applied to test objects without any test cases, and will automatically be removed for test objects that have at least one test case.

### Test Data Editor (TDE)

TES-2909

Refresh filter results in Test Data Editor when changing perspectives.

### Test Database (TDB)

TES-4040

A possible null pointer exception when displaying historical test data has been fixed.

### Test Database (TDB)

TES-4068

A possible null pointer exception when setting a pointer target and the name of the target could not be determined has been fixed.

### Variant Management

TES-4043

Do not execute deleted variant test steps.

### Variant Management

*Enhancement*

TES-4070

Allow using the "Synchronize Modules" operation for test collections, folders, and any selection containing one or more parent or variant modules.

## Release v4.3.11 (71 items)

### Variant Management

*Enhancement*

TES-4076

Improvements to module reuse:

- Added filter button in IDA to hide completely assigned elements.
- Added filter button in IDA to hide assigned elements with warnings.
- Added text filters in IDA.
- Added "Expand All" and "Collapse All" buttons in IDA.
- Deassigning multiple elements at once is now possible.
- Test objects cannot be committed if the corresponding module is open in the IDA.
- Changed sort order of interface element groups in IDA.
- "Functions" has been split into "Test Objects" and "Functions" in IDA.
- Automatically assign elements according to previous assignments to avoid having to repeat the same assignments.

### Variant Management

TES-4077

Missing stub code in variant module if a manual assignment of the interface was necessary during synchronization.

### Variant Management

TES-4079

Fix exception when replacing a missing parent module in the Properties View.

### Variant Management

TES-4113

Fixed erroneous synchronization warning after saving/restoring of module TMB backups (caused by updates of the last modified time stamp of parent modules). This problem was introduced with TES-3707 in TESSY v4.1.29, v4.2.15 and v4.3.6.

### Variant Management

TES-4116

Fixed incorrect progress when synchronizing multiple modules at once.

### Variant Management

*Enhancement*

TES-4121

Added "Force Reuse" option in Synchronize Module Dialog.

### Variant Management

*Enhancement*

TES-4125

Erroneous test data was not marked in red in the CTE test data view in variant test objects.

## Release v4.3.10 (19 items)

### C++

TES-3987

Fixed loss of test data at members in recursive nested classes with base classes.

## Release v4.3.10 (19 items)

### Command Line (tessycmd)

TES-3944

TESSYD --version now shows correct version information.

### Compiler/Target/Microcontroller

**New Feature**

TES-3317

New combinations for TI ARM and GNU Tools for Arm compilers and Imperas ISS debugger.

### Compiler/Target/Microcontroller

**Enhancement**

TES-3764

Reduced test execution time for the uVision adaption.

### Compiler/Target/Microcontroller

**New Feature**

TES-3901

New combination for Wind River TriCore compiler with iSYSTEM winIDEA debugger.

### Compiler/Target/Microcontroller

**Enhancement**

TES-3982

Added subsystem selection for MATLAB model tests, adapted test data handling for MATLAB code generator.

### Compiler/Target/Microcontroller

**Enhancement**

TES-3990

uVision will now be started by TESSY before a test run and terminated after the test run.

### Compiler/Target/Microcontroller

TES-3996

Fix winIDEA Makefile templates for Cosmic S12 and TI Arm.

### Compiler/Target/Microcontroller

TES-3999

Fixed IDB Makefile for the Microchip XC8 compiler.

### Compiler/Target/Microcontroller

TES-4014

Fixed "Check Source" feature for the new TASKING compilers.

### Driver

TES-2603

Fixed possible error generating a test driver after deleting a synthetic variable also used by the function under test in a different test object.

### Driver

TES-4005

Fixed generating possible erroneous function pointer parameter names.

### Environment Editor (TEE)

TES-3991

Fixed menu entries "Copy to Configuration Folder" and "Open with Editor/Application" for file type attributes with values containing references to other attributes of the environment.

## Release v4.3.10 (19 items)

### Import/Export

*Enhancement*

TES-917

Import and export of anonymous union member values.

---

### Interface Database (IDB)

TES-3903

Loss of test data at struct member that was actually IRRELEVANT after changing its name.

---

### Interface Database (IDB)

*Enhancement*

TES-3975

Enhanced automatic reuse in special situations for unit tests: When comparing called functions and the test object has no call trace and the unassigned called functions are not stubbed, an automatic reuse will be done.

---

### Parser

*Enhancement*

TES-4004

Updated the TKS file for the Microchip compiler.

---

### TESSY (General)

*Enhancement*

TES-3896

Properties view, attributes tab: Fixed menu entries "Copy to Configuration Folder" and "Open with Editor/Application" for file type attributes with values containing references to other attributes of the environment.

---

### Test Data Editor (TDE)

TES-4003

Fix Inputs and Outputs being collapsed in Test Data Editor when "Link with test item view" and "Hide ignored variables" are both active.

---

## Release v4.3.9 (26 items)

### C++

TES-3964

Fixed possible duplicate IDs in interface databases, which in some cases may lead to undefined behavior when entering test data or executing a test.

---

### Compiler/Target/Microcontroller

*Enhancement*

TES-3560

Added attribute 'Library Path' to the configuration of combination TASKING TriCore VX / Lauterbach Trace32.

---

### Compiler/Target/Microcontroller

TES-3972

Fixed Microchip MPLAB X for XC32 Makefile template.

---

### Component Test

TES-3961

Fixed setting initial passing of scenario variables.

---



## Release v4.3.9 (26 items)

### Defines

TES-3918

Consider value suffix u/U when calculating define values.

---

### Environment Editor (TEE)

TES-3925

Fixed visibility and flag settings for some attributes shown when selecting an environment within the "All Environments" view.

---

### Instrumenter

TES-3930

Fixed instrumenting statements containing cast to pointer to array.

---

### Instrumenter

TES-3981

Fixed possible missing struct/union/enum keyword in the instrumented code when Call Pair Coverage (CPC) is enabled.

---

### Interface Database (IDB)

TES-3860

Improved performance restoring module backups.

---

*Enhancement*

### Interface Database (IDB)

TES-3919

Implemented meaningful progress for module analysis.

---

*Enhancement*

### Interface Database (IDB)

TES-3934

Find and assign applicable unnamed enums during compare/reuse.

---

*Enhancement*

### Interface Editor (TIE)

TES-3054

Do not show anonymous enums/structs/unions within the "New Variable" dialog. Also allow defines to be used as values for the array dimensions.

---

*Enhancement*

### Mutation Test

TES-3897

Fixed display problem in Mutation View with long variable names.

---

### Mutation Test

TES-3933

Fixed mutation instrumentation for decisions containing "# ..." preprocessor outputs within the preprocessed source code.

---

### Parser

TES-3926

Fixed high memory usage when many external functions have huge structures as parameter.

---

## Release v4.3.9 (26 items)

### Parser

TES-3927

Fixed rarely occurring analyzing loop.

---

### Parser

TES-3931

Fixed error when processing more than 255 command-line arguments.

---

### Parser

TES-3950

Reduced memory consumption while analyzing source files.

---

### Project Handling

TES-3940

Improved validation in "New/Edit Project" dialog.

---

*Enhancement*

### Report

TES-3976

Reports will not be generated for test objects with changed interface.

---

### TESSY (General)

TES-3922

Added sample project and sample TMB file.

---

*New Feature*

### Test Data Editor (TDE)

TES-3597

Added preference option to hide ignored variables (those with value \*none\*) in TDE when filtering test items using the "Link with Test Item View" button.

---

*Enhancement*

### Test Data Editor (TDE)

TES-3898

Fix exception when invoking "Next/Previous Failed Value" in Test Data Editor in specific situations.

---

### Test Data Editor (TDE)

TES-3909

Fixed entering defines containing a hexadecimal number in their name.

---

### Test Database (TDB)

TES-3971

Fixed booting database on Turkish Windows.

---

### Variant Management

TES-3966

Assignment of variables for synchronizing variant modules got lost, when the modules source file(s) path was different due to changed project location (e.g. when running a project on a different computer).

---

## Release v4.3.8 (4 items)

### Driver

TES-3915

Generate code for pointer to struct component inside a global struct from a different source file to correct source file.

### Metrics

TES-3920

Fixed problems when importing actual time values and enhanced error message handling within the dialog.

### Parser

TES-3917

Updated TKS configuration for HighTec TriCore.

### Test Execution

TES-3916

Fixed test execution aborting for all but one test object when execution resources are being used in conjunction with parallel execution.

## Release v4.3.7 (19 items)

### Additional Execution Types

TES-3876

Fixed setting test data pattern to dynamic objects of type union.

### Additional Execution Types

TES-3879

Fixed setting test data pattern to unions with OUT and INOUT components.

### Additional Execution Types

TES-3884

Fixed setting test data pattern to struct/union arrays.

### Additional Execution Types

TES-3885

Fixed evaluating test data pattern with OUT OUT pointer to dynamic object.

### Additional Execution Types

TES-3888

The information if a pattern should be applied to a variable when running with test data pattern was lost after a reuse.

### Command Line (tessycmd)

TES-3872

Log any forced auto-reuse operations carried out for test objects with changed interfaces in headless mode.

*Enhancement*

## Release v4.3.7 (19 items)

### Command Line (tessycmd)

TES-3873

Apply attribute 'Function Stub Exclude List' when automatically stubbing new external functions in headless mode and apply 'Variable Exclude List' when automatically defining new variables in headless mode.

### Driver

TES-3878

Fixed generating driver for test objects with function local static pointers.

### Driver

TES-3895

Fixed generating declaration of function pointer using an enum parameter defined inside a class.

### Interface Database (IDB)

*Enhancement*

TES-3871

Changes in enum values will not require a manual reuse anymore, the new values will be applied automatically.

### Mutation Test

TES-3899

Fixed missing mutation of decisions in ternary expressions ("?" operator), unary expressions and cast expressions.

### Mutation Test

TES-3907

Fixed exception when mutating conditions inside compound statements.

### Script Editor

TES-3889

Fixed problem writing the script file for test objects with a CTE test specification that do not have any test data assigned to tree nodes.

### TESSY (General)

*New Feature*

TES-2647

Added feature to import actual time values from a given TESSY overview report XML file.

### TESSY (General)

TES-3874

Fix file contexts leading to problems log failing to open.

### TESSY (General)

*Enhancement*

TES-3880

Enhanced performance of toolbar and menu item sensitivity handling in graphical user interface.

### Test Data Editor (TDE)

TES-3902

Set new vector size when using actual as expected on an advanced stub vector value.

## Release v4.3.7 (19 items)

### Test Data Editor (TDE)

TES-3910

Fixed opening combo box to enter value for 'throws exception'.

### Variant Management

TES-3079

Show full path name of variants within parent variant selection combo box.

*Enhancement*

## Release v4.3.6 (48 items)

### ASAP Conversion

TES-3792

Fixed error executing ASAP Parser, when the database location is APPDATA or USERPROFILE.

### ASAP Conversion

TES-3816

Fixed validation problem with TAB\_VERB values during reuse operation on interface changes.

### C++

TES-1856

Fixed testing of static methods.

### C++

TES-3840

Fixed parser error when using templates with variadic parameter as base class.

### C++

TES-3849

Fixed generating type modifier for reference to array.

### CTE

TES-3831

CTE-171 Now its possible to show/hide/create/delete/move automatic and manual page breaks in the test table to predefine the content for table pages. Now the image exporter exports each table page as separate image.

*Enhancement*

### CTE

TES-3832

Fix issue where CTE documents of test objects with arrays of structures are not saveable.

### CTE

TES-3850

Fix an issue where CTE documents are not correctly saved when pointers to unions only have an address value.

### Compiler/Target/Microcontroller

TES-3752

New combination for HighTec PPC compiler with iSYSTEM winIDEA debugger.

*New Feature*

## Release v4.3.6 (48 items)

### Compiler/Target/Microcontroller

TES-3753

Added inline functions from mingw header files to 'Test Object Exclude List' attribute in 'GNU GCC' environment.

### Compiler/Target/Microcontroller

TES-3755

Fixed TRACE32 slave file to avoid a warning.

### Compiler/Target/Microcontroller

TES-3759

Add C++ support for ARM V6.

*New Feature*

### Compiler/Target/Microcontroller

TES-3775

Fixed TKS template for IAR 78K and IAR 78K V4.

### Compiler/Target/Microcontroller

TES-3809

Fixed UUIDs for TI Code Composer 9 combinations.

### Compiler/Target/Microcontroller

TES-3821

Fixed ti ARM IDB Makefiles concerning include paths.

### Compiler/Target/Microcontroller

TES-3822

Added missing timer file feature to uVision UVSC communication Makefile.

### Compiler/Target/Microcontroller

TES-3823

Fixed IDB Makefile for the Keil compiler.

### Compiler/Target/Microcontroller

TES-3827

Updated and corrected the winIDEA adaption.

### Compiler/Target/Microcontroller

TES-3830

Updated TKS file for the Keil compiler.

### Coverage Measurement

TES-3855

Added missing attributes for CPC coverage to default configuration.

### Defines

TES-3829

Fixed possible missing defines referencing other defines.

## Release v4.3.6 (48 items)

### Driver

TES-3780

Fixed sending data for constructor parameter that is a struct with an array of structs as member.

---

### Driver

TES-3786

Fixed initialization of enum return in unused extern stub functions in C++ tests.

---

### Driver

TES-3804

Generate code to initialize addresses in slave to correct source file.

---

### Driver

TES-3805

Fixed generating name of pointer member inherited from base class.

---

### Driver

TES-3841

Fixed function name conflict in slave if the test contains a reference to a class named 'parameter'.

---

### Driver

TES-3857

Fixed using 'Enable User Includes' for TI compiler.

---

### Environment Editor (TEE)

TES-3767

Fixed exception when dragging multiple environments from the "All Environments" view to the "Project Environments" view.

---

### Environment Editor (TEE)

TES-3769

Fixed changing of flags for attributes from project environments for which the the respective environment within the "All Environments" view has global attribute settings.

---

### Import/Export

TES-1805

Fixed importing advanced stub variables to C++ test objects.

---

### Import/Export

TES-3747

Move unused to used functions during import.

---

### Import/Export

TES-3806

Fixed export of vector values for advanced stub variables containing enum or define constants (e.g. "{A,B,C}").

---

### Instrumenter

TES-3777

Fixed instrumentation of constructors.

---

## Release v4.3.6 (48 items)

### Interface Assigner (IDA)

TES-3798

Changes of array sizes will not trigger a reuse operation.

---

### Interface Database (IDB)

TES-3782

Anonymous unions will now be handled as global variables.

---

### Interface Database (IDB)

TES-3826

Possible failure to open large Interface Database after analyze when an antivirus software is running.

---

### Interface Editor (TIE)

TES-3797

Fixed removal of synthetic variables from the module interface.

---

### Parser

TES-3735

Sources containing only declarations and no functions where successfully analyzed.

---

### Parser

TES-3812

Implemented support for 32 bit unsigned enum constants.

---

### Parser

TES-3838

Fixed importing Doxygen specifications if Doxygen emits functions to multiple files. Also added boolean attribute 'Doxygen Ignore Includes' to let Doxygen ignore the include paths.

---

### Report

TES-2860

Added specification, description and comment of test collections, folders, modules and test objects as optional content into the overview report.

---

***New Feature***

### Report

TES-3839

Attempt to automatically resolve file name conflicts during report generation, and display an error message if the report file name pattern is configured such that automatic resolution is not possible.

---

### Report

TES-3847

Fixed memory leak during report generation.

---

### Save/Restore Database (TMB Files)

TES-3707

Added time stamp update for modules after save/restore TMB backup files to prevent save request when closing TESSY.

---

***Enhancement***



## Release v4.3.6 (48 items)

### Script Editor

TES-3859

Fixed an error in the script editor when the root node has test data associated.

### Test Database (TDB)

TES-3810

Fixed loss of pointer test data when the target is a multi dimensional array, but given with less dimensions.

### Test Evaluation

TES-3758

Fixed evaluating dynamic OUT variables for targets using file communication.

### Test Execution

TES-3846

Fixed memory leak during test execution and evaluation.

## Release v4.3.5 (14 items)

### C++

TES-3736

Possible parser error if recursive structures without a tag name are used.

### C++

TES-3750

Fixed instrumenting constructor preceded by an explicit deleted copy constructor.

### Command Line (tessycmd)

TES-2885

The export format "yaml" could not be selected using tessycmd export command.

### Compiler/Target/Microcontroller

TES-3727

Updated default compiler dialect for GNU Tools for ARM Makefile templates.

### Component Test

TES-3740

Fixed component test execution for targets using file communication.

### Driver

TES-3729

Fixed generating namespace name for a type defined in a base class in a different namespace.

### Import/Export

TES-3731

Fixed importing dynamic object of pointer in struct array.

## Release v4.3.5 (14 items)

### Instrumenter

TES-3193

Added support to test operators "new" and "delete" with instrumentation.

---

### Mutation Test

TES-3732

Fix determining test object mutation score for targets using file communication (e.g. IAR/C-SPY).

---

### Parser

TES-3734

Fixed scanner call for IAR RX.

---

### Save/Restore Database (TMB Files)

TES-3733

Include paths were not shown in "Sources" tab after restoring a TMB file.

---

### TESSY (General)

*Enhancement*

TES-3728

Always open internal editor when using "Open With Editor".

---

### TESSY (General)

TES-3749

Test objects were missing in module backups of modules that currently failed to analyze, but that were analyzed in the past.

---

### Test Data Editor (TDE)

*Enhancement*

TES-3748

An error message will now be issued if advanced stub vector values are entered for struct/union members (which is not supported).

---

## Release v4.3.4 (45 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.

---

### C++

TES-3714

Fixed error in generated driver for function with template parameter.

---

### CTE

TES-3686

Fixed saving values for union components.

---

## Release v4.3.4 (45 items)

### CTE

TES-3704

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

### 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.

### Compiler/Target/Microcontroller

*New Feature*

TES-3610

New combination for HighTec TriCore compiler and TASKING VX debugger.

### Compiler/Target/Microcontroller

TES-3621

Fixed Microchip dsPIC configuration regarding Object Module Format.

### Compiler/Target/Microcontroller

*Enhancement*

TES-3657

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

### 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.

### Compiler/Target/Microcontroller

TES-3713

Fixed Makefile template for GNU Tools for ARM with TRACE32.

### Compiler/Target/Microcontroller

*Enhancement*

TES-3719

Implemented optional SOFT breakpoints for TRACE32's timer feature.

### 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.

## Release v4.3.4 (45 items)

### 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-3641

Fixed error linking slave for compilers with 16/32 bit char type.

---

### Driver

TES-3667

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

---

### Driver

TES-3682

Fixed missing library in master make files master\_mplab\_gnu\_i386.mk and master\_segger\_gnu\_i386.mk.

---

### 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.

---

### Driver

TES-3721

Fixed Pattern Test with unions for tests using file communication.

---

### Environment Editor (TEE)

TES-3643

Attribute values edited for entries in "All Environments" view were not inherited to project environments (only after restart of TESSY). Values edited for C++ environments were not saved at all.

Also the special SOURCEROOT variable was not applied when collapsing paths. Paths already containing \$ (SOURCEROOT) were shown as erroneous.

---

### Environment Editor (TEE)

TES-3692

Fixed resetting "All Environments" level attributes to factory value. Also fixed an exception that occurred when using "Edit Attribute..." to change an attribute value.

---

### Environment Editor (TEE)

TES-3697

Enhanced UI functionality:

- Added "Copy To Configuration" and "Open with Application/Editor" menu entries to attributes view
  - Show decorator for "Makefile/Path/Environment" flags
  - Ignore inheritance when sorting attributes
  - Provide buttons to change the order of include paths within the include files dialog for directory attributes
- 

**Enhancement**

## Release v4.3.4 (45 items)

### Environment Editor (TEE)

*Enhancement*

TES-3700

Updated TEE groups entries.

---

### Environment Editor (TEE)

*Enhancement*

TES-3703

Fixed test execution problem with multiple target instances (e.g. available for TRACE32) caused by missing "Resource List" attribute flag.

---

### 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.

---

### Interface Editor (TIE)

TES-3722

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

---

### 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.

---

### TESSY (General)

*Enhancement*

TES-3639

Add filter text in Attribute Section in Properties View.

---

### TESSY (General)

TES-3668

Fixed potentially suppressed error messages within the messages view.

---

## Release v4.3.4 (45 items)

### TESSY (General)

*Enhancement*

TES-3706

Fixed makefiles used for CTC++ integration and updated application note.

### Test Data Editor (TDE)

TES-3642

Fixed "Copy Actual Value" for arrays.

### 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.

### Test Execution

*Enhancement*

TES-3699

Fixed exception while building coverage reports for source code containing ternary expressions (the "?" operator) in decisions of while loops.

### 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.

### Test Execution

TES-3724

Fixed test objects not being evaluated after retrying execution.

### Variant Management

TES-3640

Corrected behavior for overwriting inherited test cases.

## Release v4.3.3 (5 items)

### Command Line (tessycmd)

*Enhancement*

TES-2442

Shell completion for tessycmd is now available within the bash shell started from the TESSY help menu.

### Environment Editor (TEE)

*New Feature*

TES-3219

The new TEE perspective provides easy access to the environment configuration within TESSY. Project environment elements inherit from the respective system environment and will be stored within the configuration file. Multiple environments can be compared and individual attribute values can be assigned to all selected environments. Also a grouping feature of attributes has been added.

## Release v4.3.3 (5 items)

### Mutation Test

**New Feature**

TES-3249

The new mutation test feature automatically checks the error detection capability of existing test cases. This unique function thus improves the review of test methods and test quality, as required by the standards for functional safety (IEC 61508, IEC 62304, ISO 26262 and EN 50128) and significantly reduces the manual review efforts.

### Test Execution

**New Feature**

TES-2925

The new additional test execution features provide automated quality analysis of test cases.

- "Run without instrumentation" executes without any source code instrumentation.
- "Run with test data pattern" initializes all OUT variables with two configurable patterns.
- "Run mutation test" executes the test cases with mutated code.

All additional executions are conducted after successful completion of the normal test execution (either with or without coverage measurement) and all of them must yield the same results as the normal test execution.

### Test Execution

**New Feature**

TES-3194

The new test data pattern initialization feature checks the independence of test cases and ensures that all expected outcomes have explicitly been calculated.

In order to check whether variables with passing direction OUT have really been written during execution of a test case, two different test data patterns can automatically be applied to initialize such variables (or components of structs/unions) without the need to change the passing direction.