Generated Jun 25 2020

LDRA Ltd
C/C++ LDRA Tool Suite
RELEASE NOTES

For Platform specific configuration, please refer to the Installation Guide.

New Features for 9.8.4

TBrun Section

NEW

C++ 11. Detection and handling of enum classes and structs.

NEW

C++ 11. Automatic generation of conversion routines for enum class types with the values scoped to the enum class.

(LM ref. 8717)

NEW

C++ 11. Keywords final and override are removed from the cv qualifier section in stub generation.

NEW

TBextreme. If a stub which returns two possible return values is called multiple times in a single condition,

return values for the stub will be generated to satisfy the conditions if the calls to the stubs were combined

in an "AND" condition and if they were combined in an "OR" condition which will result in 2N+2 result

combinations being generated.

TBextreme. Improved applying of values from an expression which results in a boolean applied to another variable.

TBextreme. Improved applying of values to exclusive or operators.

TBextreme. Improved applying of values of mathematical expressions that are tested against another value.

TBextreme. Improved filtering of output values being assigned to variables as input values.

TBextreme. Improved assigning of values to "AND" and "OR" logical operators.

Improved handling of specialised class member functions in non-templated classes.

Dictionary. Improved handling of array elements followed by operators.

Dictionary. Added checking of addresses of parameters in an if condition.

TBextreme. If an array is indexed by a variable or other symbol, then if no specific dictionary values

are found for a particular index, then element 0 will be checked for values too.

TBextreme. If the generation of test cases for tabular yields too many test cases,

then the values applied to variables will be grouped together if they are identical

with the TBextreme process being generated from the groups of values.

Values in iominmidmax.ini updated so that when they are numerically equivalent to the values in ioinput.ini,

the same syntax is used in both files.

LDRA Testbed Section

NEW

Sysearch entry type 6 added. These are the names of directories where include files

should not be expanded into static analysis. For example can be used to exclude local

directories from include file search.

NEW

Sysppvar generation. Setting the INI flag USE_LANG_EXT_FOR_SPPVGEN=TRUE causes the

instrument_macros program to generate files with either .c or .cpp file extensions

instead of .macros extension.

Code Review - rules checked by C/C++ lexical analysis (indicated in the <lang>pen.dat file by a lower case s).

Where the count of a specific standards violation exceeds a set limit within the reformatted file,

the reporting of that standard is halted with a smaller number retained.

SIF_PEN_LMIT = N The maximum count of a violation within the reformatted file (default 7500).

SIF_PEN_RETAIN=N The number of violations to retain within the reformatted file (default 100).

Shorten - does not generate an error if recursive include files are opened

with the open all flag set.

The main heading for the Dynamic report and MC/DC Test Case Planner report

has improved format where a long source file name is wrapped.

Updated Compiler Configuration for Microsoft Compilers around the instrumentation

of template parameters.

Shorten - retain blank line after // comment with continuation marker. (LM ref. 7549)

TBevolve Baseline Evolve Review showing incorrect colouring. (LM ref. 8902)

Shorten Interactive Include dialog required DPI updating. (LM ref. 8917, 8918)

TBexclude - Code Review. Where exclusions were created by external rule identifier

the exclusion was not matched correctly when a violation was mapped to more than one rule.

For very long source file names the MC/DC Test Case Planner report writer could fail to generate

the report.

For very long decision text, the MC/DC Test Case Planner report writer could fail to write the

information in the report.

TBpublish files allow for transfer to platforms with case sensitive

file naming. (LM ref. 3776, 6332, 7309)

Analog Devices DPJ files correctly processed when loaded from command line.

TBvision Section

NEW

Source Viewer windows in Callgraph and Flowgraphs now contain syntax highlighting.

CHG

Enhanced handling of Class and Namespaces.

CHG

TBexclude. Where an Exclusion or Note applies to an analysis phase that does not

have results, it is not tested and is reported as "Inactive". (LM ref. 8725)

CHG

Enhanced durability of Interface Information dialog. (LM ref. 8879)

Context menu action renamed from 'View Testbed.ini' to 'View INI File'

TBexclude. Expanded Exclusion/Note dialog does not create a new Exclusion/Note (LM ref. 8891)

TBexclude. Where exclusions were created by external rule identifier

but no model was selected for code review, this caused an error.

FIX

TBexclude. Correct validation of exclusions/notes for set names

containing the '.' character.

FIX

TBexclude. When using previous versions of penalty and report data files, the exclusion context

menu did not add rules for older versions of external standards.

FIX

Examples containing functions with $$ in the name could fail to generate dynamic coverage

summary results for viewing graphically. (LM ref. 9000)

TBmanager Section

CHG

Enhanced codeBeamer integration export features. (LM ref. 8706)

CHG

Modified codeBeamer connection storage to support more complex codeBeamer installation

environments. A port number (if used) must now be included with the Server and not

specified separately. Users with existing codeBeamer integration settings must modify

the connection via the Edit connection button. (LM ref. 9075)

CHG

Enhanced codeBeamer integration logging.

Enhanced Jira integration connection test for recent versions of Jira Cloud. (LM ref. 8858)

Enhanced Jira integration logging.

Enhanced Jama integration import to replace PickList Id's with their associated name. (LM ref. 8857)

Enhanced Jama integration logging.

Enhanced SafeUtilities example project to better utilise codeBeamer integration features. (LM ref. 9002)

Updated message when accessing TBmanager TIP's that are not installed. (LM ref. 9082)

Updated Source menu options. (LM ref. 6494, 8256)

Enhanced display of progress dialogs on High DPI screens.

Remove and Unmap Source dialog response when using the ESC key. (LM ref. 6495)

Enhanced addition of Source to the project from GLH Files. (LM ref. 6511)

Enhanced regression of TCF Files. (LM ref. 5772)

Enhanced locking of the Project file. (LM ref. 5773)

Static Analysis Module

CHG

Enhanced detection of 93 S. This may result in fewer reported instances. (LM ref. 6161, 6636)

CHG

Enhanced Static Analysis. (LM ref. 8872)

CHG

Enhanced Static Analysis. (LM ref. 8859)

CHG

Enhanced detection of 21 S. This may result in fewer reported instances. (LM ref. 8831)

Enhanced detection of 95 S. This may result in fewer reported instances. (LM ref. 7795)

Enhanced Static Analysis. (LM ref. 8904)

Enhanced Static Analysis. (LM ref. 7549)

Enhanced Static Analysis. (LM ref. 8804)

Enhanced Static Analysis. (LM ref. 8809)

Enhanced detection of 76 D. This may result in fewer reported instances. (LM ref. 7351, 7367)

Enhanced Static Analysis. (LM ref. 8527)

Enhanced Static Analysis. (LM ref. 8568)

Enhanced Static Analysis. (LM ref. 8587)

Enhanced Static Analysis. (LM ref. 8487)

Enhanced detection of uniform initialisations. (LM ref. 8092, 8627, 8794)

Enhanced detection of 434 S. This may result in fewer reported instances. (LM ref. 6915, 8377)

Enhanced Static Analysis. (LM ref. 8790)

Enhanced detection of logical operators in uniform initialisations. (LM ref. 8791, 8793)

Enhanced detection of 1 J. This may result in fewer reported instances. (LM ref. 6674, 7254, 8628)

Enhanced detection of 47 S. This may result in fewer reported instances. (LM ref. 8796)

Enhanced Static Analysis. (LM ref. 8770)

Enhanced detection of 329 S. This may result in fewer reported instances. (LM ref. 8768)

Enhanced detection of lambda expressions in uniform initialisations. (LM ref. 8876, 8877)

Enhanced detection of 413 S. This may result in fewer reported instances. (LM ref. 4523, 7677, 8864)

G

Enhanced detection of 531 S. This may result in fewer reported instances. (LM ref. 8832, 8838)

CHG

Enhanced Static Analysis. (LM ref. 8059)

CHG

Enhanced detection of 98 S. This may result in fewer reported instances. (LM ref. 8058)

CHG

Enhanced detection of 458 S. (LM ref. 3124, 5212, 6909, 8058, 8103, 8169)

C
H
G

Enhanced detection of 159 S. (LM ref. 8050, 8096)

Enhanced detection of 530 S. This may result in fewer reported instances. (LM ref. 8050)

Enhanced detection of 550 S. This may result in fewer reported instances. (LM ref. 6920, 8397)

Enhanced detection of 90 S. This may result in fewer reported instances. (LM ref. 340, 2475, 9102)

Enhanced detection of 293 S. This may result in fewer reported instances. (LM ref. 8359)

Enhanced detection of 576 S. This may result in fewer reported instances. (LM ref. 5005, 7793, 8642)

Enhanced Static Analysis. (LM ref. 8942)

Enhanced detection of 114 S. This may result in fewer reported instances. (LM ref. 8133)

Enhanced Static Analysis. (LM ref. 8933)

Enhanced Static Analysis. (LM ref. 8091)

Enhanced detection of 64 D. This may result in fewer reported instances. (LM ref. 8067, 9091)

Enhanced detection of 403 S. (LM ref. 9090)

Enhanced detection of 94 S. This may result in fewer reported instances. (LM ref. 9095)

Enhanced detection of 452 S. This may result in fewer reported instances. (LM ref. 9088)

Enhanced detection of 183 S. This may result in fewer reported instances. (LM ref. 9117)

Enhanced Static Analysis. (LM ref. 8648, 8650, 8651)

Enhanced Static Analysis. (LM ref. 8754)

Enhanced detection of 110 S. This may result in fewer reported instances. (LM ref. 8789)

Enhanced Static Analysis. (LM ref. 8623)

Enhanced detection of 546 S. This may result in fewer reported instances. (LM ref. 7872)

Enhanced detection of 8 D. This may result in fewer reported instances. (LM ref. 7274)

CHG

Enhanced detection of 71 S. This may result in fewer reported instances. (LM ref. 7977)

CHG

Enhanced Static Analysis. (LM ref. 8792)

CHG

Enhanced Static Analysis. (LM ref. 8840)

CHG

Enhanced detection of 57 S. This may result in fewer reported instances. (LM ref. 8698)

CHG

Enhanced detection of 401 S. This may result in fewer reported instances. (LM ref. 2882, 7823, 8048, 8160, 8546)

Enhanced Static Analysis. (LM ref. 8896)

Enhanced detection of 488 S. This may result in fewer reported instances. (LM ref. 8104, 8855)

Enhanced detection of 139 S. This may result in fewer reported instances. (LM ref. 3855, 7744, 8062, 8601, 8839)

Enhanced detection of 93 D. (LM ref. 8054, 9121)

Enhanced detection of 489 S. (LM ref. 8369, 8542, 8867, 9104)

Enhanced Static Analysis. (LM ref. 8991)

Enhanced detection of 114 S. This may result in fewer reported instances. (LM ref. 8134)

Enhanced Static Analysis. (LM ref. 8878)

Enhanced Static Analysis. (LM ref. 8898)

Enhanced detection of 114 S. This may result in fewer reported instances. (LM ref. 8138)

Enhanced Static Analysis. (LM ref. 8899)

Enhanced Static Analysis. (LM ref. 8889)

Enhanced Static Analysis for MC/DC instrumentation. (LM ref. 8780)

Enhanced Static Analysis. (LM ref. 8913)

Enhanced Static Analysis. (LM ref. 8916)

Enhanced Static Analysis. (LM ref. 8915)

Enhanced detection of 134 S. This may result in fewer reported instances. (LM ref. 8849)

Enhanced Static Analysis. (LM ref. 9046)

Enhanced Static Analysis. (LM ref. 9048)

Enhanced detection of 495 S. This may result in fewer reported instances. (LM ref. 9099)

CHG

Enhanced detection of 382 S. This may result in more reported instances. (LM ref. 3730)

CHG

Enhanced detection of 630 S. This may result in fewer reported instances. (LM ref. 5496)

CHG

Enhanced detection of 491 S. This may result in fewer reported instances. (LM ref. 6542)

CHG

Enhanced detection of 621 S. This may result in more reported instances. (LM ref. 6605)

CHG

Enhanced detection of 18 X. This may result in more reported instances. (LM ref. 6921)

Enhanced detection of 3 X. This may result in fewer reported instances. (LM ref. 6990)

Enhanced detection of 331 S. This may result in fewer reported instances. (LM ref. 7600)

Enhanced detection of 6 D. This may result in fewer reported instances. (LM ref. 7953)

Enhanced detection of 560 S. This may result in fewer reported instances. (LM ref. 8081)

Enhanced detection of 123 S. This may result in fewer reported instances. (LM ref. 8168)

Enhanced detection of 517 S. This may result in fewer reported instances. (LM ref. 8170)

Enhanced detection of 63 X. This may result in fewer reported instances. (LM ref. 8172)

Enhanced detection of 447 S. This may result in fewer reported instances. (LM ref. 9105)

Enhanced detection of 201 S. This may result in fewer reported instances. (LM ref. 9093)

Enhanced detection of 353 S. This may result in fewer reported instances. (LM ref. 9110)

Enhanced detection of 9 S. This may result in fewer reported instances. (LM ref. 9106)

Enhanced Static Analysis. (LM ref. 9135)

Enhanced Static Analysis. (LM ref. 8668)

Enhanced Static Analysis. (LM ref. 8748)

Enhanced Static Analysis. (LM ref. 8767)

Enhanced detection of 243 S. This may result in fewer reported instances. (LM ref. 8844)

Enhanced detection of 90 S. This may result in fewer reported instances. (LM ref. 3310)

Enhanced Static Analysis. (LM ref. 8874)

Enhanced Static Analysis. (LM ref. 8801)

Data Flow Module

CHG

Enhanced detection of 113 D. This may result in fewer reported instances. (LM ref. 6318)

CHG

Enhanced detection of 127 D. This may result in fewer reported instances. (LM ref. 7546)

CHG

Enhanced Data Flow Analysis. (LM ref. 8911)

CHG

Enhanced detection of 45 D. This may result in fewer reported instances. (LM ref. 9033)

Enhanced detection of 72 D. This may result in fewer reported instances. (LM ref. 4964, 7730)

Enhanced detection of 105 D. This may result in fewer reported instances. (LM ref. 6315, 8360)

Enhanced detection of 72 D. This may result in fewer reported instances. (LM ref. 8379)

Cross Reference Module

CHG

Enhanced detection of 31 X. This may result in fewer reported instances. (LM ref. 4518)

Dynamic Coverage Module

CHG

Improved procedure call tracing and dynamic dataflow in grey box mode with streamed execution history.

CHG

Improved coverage where sequences test the main function.

C/C++ Penalties and Standards Mappings

NEW

1 V An assignment operator should not be virtual.

C++ Mapping added: AUTOSAR-C++:17-03 A10-3-5

C++ Mapping added: AUTOSAR-C++:18-10 A10-3-5

NEW

2 V A non-POD type should be defined as class.

C++ Mapping added: AUTOSAR-C++:17-03 A11-0-1

C++ Mapping added: AUTOSAR-C++:18-10 A11-0-1

3 V Class special functions not defined (Rule of three).

4 V Class special functions not defined (Rule of four).

5 V Class special functions not defined (Rule of five).

C++ Mapping added: AUTOSAR-C++:18-10 A12-0-1

6 V Class special functions not defined (Rule of six).

C++ Mapping added: AUTOSAR-C++:17-03 A12-0-1 (LM ref. 8820)

7 V Virtual method implemented in final class.

C++ Mapping added: AUTOSAR-C++:17-03 A10-3-3

C++ Mapping added: AUTOSAR-C++:18-10 A10-3-3

C++ Mapping added: HIC++v4 9.1.5

8 V Struct contains non-public data members.

C++ Mapping added: AUTOSAR-C++:17-03 A11-0-2

C++ Mapping added: AUTOSAR-C++:18-10 A11-0-2

9 V Struct contains member functions.

C++ Mapping added: AUTOSAR-C++:17-03 A11-0-2

C++ Mapping added: AUTOSAR-C++:18-10 A11-0-2

10 V Struct is used as a base class.

C++ Mapping added: AUTOSAR-C++:17-03 A11-0-2

C++ Mapping added: AUTOSAR-C++:18-10 A11-0-2

11 V Struct is derived from another struct or class.

C++ Mapping added: AUTOSAR-C++:17-03 A11-0-2

C++ Mapping added: AUTOSAR-C++:18-10 A11-0-2

12 V Declare class with non-virtual destructor final.

C++ Mapping added: AUTOSAR-C++:17-03 A12-4-2

C++ Mapping added: AUTOSAR-C++:18-10 A12-4-2

13 V Subscript operator [] should have const overload.

C++ Mapping added: AUTOSAR-C++:17-03 A13-5-1

C++ Mapping added: AUTOSAR-C++:18-10 A13-5-1

C++ Mapping added: HIC++v4 13.2.4

DATE

94 S Casting operation on a pointer.

Vals flag 537 set on for MISRA-AC

Vals flag 537 set on for MISRA-C:2004

UPDATE

95 S Casting operation to a pointer.

Vals flag 537 set on for MISRA-AC

Vals flag 537 set on for MISRA-C:2004

UPDATE

110 S Use of single line comment //.

Vals flag 350 set on for GJB_8114

Vals flag 350 set on for GM-L1

Vals flag 350 set on for GM-L2

Vals flag 350 set on for MISRA-C:2012

Vals flag 350 set on for MISRA-C:2012(Ed 3 Rev 1)

Vals flag 350 set on for MISRA-C:2012(Ed 3)

Vals flag 350 set on for MISRA-C:2012/AMD1

Vals flag 350 set on for MISRA-C:2012/AMD1/TC1

Vals flag 350 set on for MISRA-C:2012/TC1

Vals flag 350 set on for SEC-C

Vals flag 350 set on for SEC-Cv2

Vals flag 350 set on for SEC-Cv3

169 S Use of forward reference of class member.

C++ Mapping removed: AUTOSAR-C++:18-10 A5-3-3

201 S Use of numeric literal in expression.

Vals flag 237 set on for AUTOSAR-C++

Vals flag 237 set on for AUTOSAR-C++:18-10

230 S No copy constructor defined for class.

C++ Mapping removed: AUTOSAR-C++:17-03 A12-0-1

C++ Mapping removed: AUTOSAR-C++:18-10 A12-0-1

231 S No assignment operator defined for class.

C++ Mapping removed: AUTOSAR-C++:17-03 A12-0-1

C++ Mapping removed: AUTOSAR-C++:18-10 A12-0-1

232 S No destructor defined for class.

C++ Mapping removed: AUTOSAR-C++:17-03 A12-0-1

C++ Mapping removed: AUTOSAR-C++:18-10 A12-0-1

233 S No copy constructor for class with pointers.

C++ Mapping removed: AUTOSAR-C++:17-03 A12-0-1

C++ Mapping removed: AUTOSAR-C++:18-10 A12-0-1

234 S No assignment operator for class with pointers.

C++ Mapping removed: AUTOSAR-C++:17-03 A12-0-1

C++ Mapping removed: AUTOSAR-C++:18-10 A12-0-1

235 S No destructor for class with pointers.

C++ Mapping removed: AUTOSAR-C++:17-03 A12-0-1

C++ Mapping removed: AUTOSAR-C++:18-10 A12-0-1

UPDATE

260 S No default constructor declared for class.

C++ Mapping removed: AUTOSAR-C++:17-03 A12-0-1

C++ Mapping removed: AUTOSAR-C++:18-10 A12-0-1

UPDATE

469 S No copy constructor for complex destructor.

C++ Mapping removed: AUTOSAR-C++:17-03 A12-0-1

C++ Mapping removed: AUTOSAR-C++:18-10 A12-0-1

470 S No assignment operator for complex destrtor.

C++ Mapping removed: AUTOSAR-C++:17-03 A12-0-1

C++ Mapping removed: AUTOSAR-C++:18-10 A12-0-1

524 S Jump into try or catch statement.

Vals flag 331 removed for AUTOSAR-C++

Vals flag 331 removed for AUTOSAR-C++:17-03

Vals flag 331 removed for AUTOSAR-C++:18-10

Vals flag 331 removed for CERT-C++:2014

Vals flag 331 removed for Legacy

Vals flag 331 removed for MISRA-C++:2008

Vals flag 331 removed for RUNTIME

554 S Cast to an unrelated type.

Vals flag 537 set on for MISRA-AC

Vals flag 537 set on for MISRA-C:2004

631 S Declaration not reachable.

C++ Mapping added: AUTOSAR-C++:18-10 M0-1-1

632 s Use of // comment in pre-processor directive or macro defn.

Vals flag 350 set on for GM-L1

Vals flag 350 set on for GM-L2

Vals flag 350 set on for MISRA-C:2012

Vals flag 350 set on for MISRA-C:2012(Ed 3 Rev 1)

Vals flag 350 set on for MISRA-C:2012(Ed 3)

Vals flag 350 set on for MISRA-C:2012/AMD1

Vals flag 350 set on for MISRA-C:2012/AMD1/TC1

Vals flag 350 set on for MISRA-C:2012/TC1

Vals flag 350 set on for SEC-C

Vals flag 350 set on for SEC-Cv2

Vals flag 350 set on for SEC-Cv3

8 D DD data flow anomalies found.

Vals flag 391 set on for CERT-C

Vals flag 391 set on for CERT-C:2014

Vals flag 391 set on for CERT-C:2016

Vals flag 391 set on for GM-L1

Vals flag 391 set on for GM-L2

Vals flag 391 set on for MISRA-C:2012

Vals flag 391 set on for MISRA-C:2012(Ed 3 Rev 1)

Vals flag 391 set on for MISRA-C:2012(Ed 3)

Vals flag 391 set on for MISRA-C:2012/AMD1

Vals flag 391 set on for MISRA-C:2012/AMD1/TC1

Vals flag 391 set on for MISRA-C:2012/TC1

UPDATE

70 D DU anomaly, variable value is not used.

C++ Mapping added: MISRA-C++:2008 0-1-3

105 D DU anomaly dead code, var value is unused on all paths.

C++ Mapping added: AUTOSAR-C++:17-03 M0-1-3

C++ Mapping added: MISRA-C++:2008 0-1-3

Vals flag 391 set on for CERT-C

Vals flag 391 set on for CERT-C:2014

Vals flag 391 set on for CERT-C:2016

Vals flag 391 set on for GM-L1

Vals flag 391 set on for GM-L2

Vals flag 391 set on for MISRA-C:2012

Vals flag 391 set on for MISRA-C:2012(Ed 3 Rev 1)

Vals flag 391 set on for MISRA-C:2012(Ed 3)

Vals flag 391 set on for MISRA-C:2012/AMD1

Vals flag 391 set on for MISRA-C:2012/AMD1/TC1

Vals flag 391 set on for MISRA-C:2012/TC1

CWE standard model renamed to CWE-2.11.

CWE now refers to the latest version, currently CWE-3.4.

98 S Actual and formal parameters inconsistent (MR).

C Mapping removed: CWE 685 (LM ref. 8049)

Utilities Section

NEW

TBglhapi. Method description added to class CFunctionCall which can be used to determine if the call is to a system call or default constructor.

NEW

TBglhapi. Functions CGeneralResultsInformation::getAnalysisEntityName and CGeneralResultsInformation::getAnalysisEntityType added

to the api to get the analysed file or set name and type.

NEW

TBbuildimport. Options to "Open with TBvision" and "Open with TBrun" available from the context menu of a file

in the File(s) Summary view.

NEW

TBbuildimport. Now available for use with Cygwin GNU GCC.

NEW

Example. New example files added for Cashregister v6. (LM ref. 9083)

C H G

Increased version availability in the Visual Studio Plugins. (LM ref. 8718)

Increased plugin compatibility with Visual Studio 2019. (LM ref. 8897, 8906)

LDRAlauncher. Increased availability of documentation. (LM ref. 8744)

Updated 'GCC ARM Lauterbach TRACE32' example and documentation to the latest version. (LM ref. 9080, 9081)

Enhanced reporting of class based Hungarian Notation standards.

Corrected installation message for GCC ARM Lauterbach TRACE32 compiler selection. (LM ref. 9078)

Quotes added to Visual Studio 2015/2017 project file build command.

Documentation Section

CHG

Updated CSV2TCF documentation to use the python version of CSV2TCF. (LM ref. 8744)

CHG

Updated Jenkins Plugin documentation. (LM ref. 8774)

CHG

Standards documentation updated. (LM ref. 7722)

CHG

Report Editor documentation updated. (LM ref. 8910)

Getting Started Tutorial (Host/Target) updated. (LM ref. 9079)

Getting Started Tutorial updated.

Tool Suite Tutorial updated.

New Features for 9.8.3

TBrun Section

FIX

Setting of Default for all Sequences of the Post Build Steps in the Additional Commands tab of the Driver Build & Execution Options dialog. (LM ref. 8559)

FIX

Test Case coverage with profiles. Dynamic dataflow coverage report and Flowgraph take account of the active profile.

FIX

Unique identification of types declared as typedefs with the same name but in different files and typedeffing different underlying structs or similar.

LDRA Testbed Section

FIX

Shorten did not process files with fewer than 5 characters, treating them as empty files.

FIX

Code Review. Additional violations of some rules may be shown where a different secondary line

number is available, but the violation is otherwise a duplicate of a previous violation.

FIX

Code Review. In some cases duplicates of unused inspected violations could be generated.

FIX

Code Review report. Additional dataflow information tables modified to account for

removal of violations by LDRA_INSPECTED\LDRA_EXCLUDE annotations.

In some circumstance execution histories were not compressed and stored in the GLH file.

Enhanced Dynamic Dataflow.

Dynamic Dataflow. Allow for uninstrumented or otherwise unexecuted procedures when determining

aliased variable execution. (LM ref. 8617)

Data Object Analysis report. For system reports, does not attempt to read results for files

that have failed analysis. (Where continue_system_analysis has been enabled) (LM ref. 8583)

Flowgraph. Enhanced invocation of Flowgraph from Callgraph context menu. (LM ref. 8710)

TBvision Section

FIX

When generating a Code Review with a different model from that used at analysis,

in certain circumstances violations could be shown that did not map to the selected model.

FIX

Option to remove an Exclusion File is now enabled. (LM ref. 8496)

FIX

TBexclude. When adding a Note or Exclusion for a single violation with the prompt dialog enabled,

it could be applied to more than one violation on the same line.

TBmanager Section

NEW

Example project added to Tunnel 5.2 area for Automotive SPICE compliance.

NEW

DOORS Next Gen integration now utilises the python framework similarly to other integrations.

CHG

Enhanced durability of Test Case links when importing from codeBeamer. (LM ref. 8531)

CHG

Enhanced naming structure of fields imported from codeBeamer. (LM ref. 8532)

Enhanced usability when importing Test Cases from codeBeamer. (LM ref. 8534)

Static Analysis Module

CHG

Enhanced Static Analysis. (LM ref. 8527)

CHG

Enhanced Static Analysis. (LM ref. 8587)

CHG

Enhanced Static Analysis. (LM ref. 8593)

CHG

Enhanced detection of 404 S. This may result in fewer reported instances. (LM ref. 8392)

Enhanced detection of 76 D. This may result in fewer reported instances. (LM ref. 7347)

Enhanced Static Analysis. (LM ref. 8449)

Enhanced reporting of 489 D. (LM ref. 6733)

Enhanced detection of 9 S. This may result in fewer reported instances. (LM ref. 8520)

Enhanced Static Analysis. (LM ref. 8525)

Enhanced Static Analysis. (LM ref. 8526)

Enhanced Static Analysis. (LM ref. 8527)

Enhanced Static Analysis. (LM ref. 8586)

Enhanced Static Analysis. (LM ref. 8590)

Enhanced Static Analysis. (LM ref. 8588)

Enhanced Static Analysis. (LM ref. 8585)

Enhanced Static Analysis. (LM ref. 8583)

Enhanced Static Analysis. (LM ref. 8587)

Enhanced Static Analysis. (LM ref. 8593)

Enhanced Static Analysis. (LM ref. 8594)

Enhanced detection of the size of anonymous structs and unions. (LM ref. 6884)

Enhanced detection of 65 D. This may result in fewer reported instances. (LM ref. 7945)

Enhanced detection of 18 D. This may result in fewer reported instances. (LM ref. 7949)

Enhanced detection of 131 D. This may result in fewer reported instances. (LM ref. 7949)

Enhanced detection of 271 S. This may result in fewer reported instances. (LM ref. 7981)

G

Enhanced detection of 374 S. This may result in fewer reported instances. (LM ref. 8205)

CHG

Enhanced detection of 270 S. This may result in fewer reported instances. (LM ref. 7861, 7868)

CHG

Enhanced Static Analysis. (LM ref. 8691)

CHG

Enhanced Static Analysis. (LM ref. 8692)

Data Flow Module

CHG

Enhanced detection of 14 D. This may result in fewer reported instances. (LM ref. 7881)

CHG

Enhanced detection of 105 D. This may result in fewer reported instances. (LM ref. 8393)

CHG

Enhanced detection of 92 D. This may result in fewer reported instances. (LM ref. 7579)

CHG

Enhanced detection of 1 D. This may result in fewer reported instances. (LM ref. 7589)

Utilities Section

NEW

Jenkins plugin available. Consult the documentation in the utils/jenkins directory.

NEW

TBglhapi. Functions CClassDeclaration::getIsPlainOldData and CVariableListDeclaration::getIsPlainOldData added

to the api to determine if structure types (and similar) are classed as Plain Old Data. The use of these is

demonstrated in main_interface_examples.

NEW

TBglhapi. Function printOutClass in main_interface_examples updated to identify a class

where the declaration lies outside the analysis scope. This typically arises for classes derived

from a class in a system header file.

TBglhapi. New class NLDRAAnalysis::CHeaderGuard provides information about location and

mechanism used to protect a header file when included multiple times.

TBglhapi. Anonymous Namespaces are now reported on in a 8192 flag execution.

TBglhapi. Functions declared in a Namespace are now reported on.

TBglhapi. Classes that are children, are now reported in the main class section output.

GLH Compare dialog. Vals file settings page enhanced.

Unit Test TCF Generator. A python program to read a set and automatically create unit test tcf files.

TCF_Splitter. Splits each tcf file in a given directory into a number of tcfs each of which contains at maximum

'max_tests' test cases.

Enhanced Installation System start up checks.

Safe Utilities example updated to include TBexclude functionality.

Csv2tcf. Reimplemented in Python.

Installer - Enhanced checking libz related dependencies on Linux platforms. (LM ref. 7832)

Rhapsody Plugin - Enhanced generation of sysearch.dat file.

Rhapsody Plugin - Enhanced generation of large .tbmspec files.

New Features for 9.8.2

TBrun Section

NEW

C++. Improved calling of test cases for partially specialised static member functions.

NEW

Dictionary. Improved detection and applying of values to dereferences of pointers, particularly when the pointer is an element of a structure.

NEW

TBextreme. Improved removal of duplicated values as inputs. Especially when the values are lexically different but are equivalent in value.

NEW

C++. Class Hierarchy Reports and User Defined Types Reports indicate if a class is specialised or partially

specialised.

Improved resolution of functions that mismatch the use of the keywords typename and class on their template

arguments between their prototypes and bodies. (LM ref. 7699)

Improved instantiation of base classes in stubs when the constructor is from a nested class and it

instantiates a templated base class. (LM ref. 8084)

C++11. Functions that are deleted or defaulted are checked when creating managed stubs for the sequence.

The functions are marked as Defaulted or Deleted in the calls view. (LM ref. 8034)

When instantiating a base class in a stub, if the base class is templated but the template instantiations match

the type of the parameters in the derived class, then the parameters from the derived class will be passed to the

base in the constructor initialisations.

Improved initialisation of pointers especially when the pointer part is realised through a typedef

and the variable of the typedef type is const.

Parameter and Member items now have input, output or input/output icons

Processing of declarations formed of keywords such as auto. (LM ref. 8336)

Initialisation of the code section in the Override Return Variable Declaration dialog for a test case. (LM ref. 8364)

Create New User Defined Include File - browse for file, filter "Include Files (*.h *.hpp *.hxx)" displays files

with a matching file extension. (LM ref. 8300)

The command line arguments -guimin and -guimax start the application minimised or maximised respectively.

(LM ref. 8293)

LDRA Testbed Section

NEW

LDRA_INSPECTED annotations are now automatically changed within the internal LDRA analysis representations of

the source to be able to utilise the new LDRA_EXCLUDE annotation facilities.

NEW

LDRA_EXCLUDE source code annotation facilities replace LDRA_INSPECTED source code annotation facilities.

Consult the ldra_exclude.pdf documentation for more information.

NEW

The following INI entries have been added to allow switching on / off of specific language version

dialect elements:

CPP14_DIALECT=TRUE/FALSE Enable/disable C++14 language elements. (When enabled also enables C++11 elements)

CPP17_DIALECT=TRUE/FALSE Enable/disable C++17 language elements. (When enabled also enables C++14 and C++11 elements)

Code Review set report. Source and associated header reporting shows additional violations

for each associated header generated by it's inclusion in non-associated source files.

Dynamic analysis executable can resize with table too small error when running initialisation mode.

Quality Review configuration dialog. "Add/Remove procedures in report" settings retained. (LM ref. 8241)

When running analysis on a single file, code/quality review reports for another file could be removed.

Enhanced TBpublish compatibility with latest versions of Google Chrome. (LM ref. 8437)

TBvision Section

NEW

TBexclude facility available to exclude programming standards violations and to subsequently

justify/document their exclusion. Contact your local LDRA representative for more information.

NEW

Code Review report. Exclusions table has Justification information.

NEW

Code Review report. Exclusions table shows only exclusions that are valid

in the scope of the report. Set SCREEN_INVALID_EXCLUSIONS=FALSE to show all.

Enhanced header file handling for Group Sets.

Enhanced reporting of functions declared in header files for Code Review and Quality Review for Group Sets.

Enhanced Code Review By Violations view for exclusions. (LM ref. 8389)

Enhanced compatibility of Violation by Violation Code Reviews and TBexclude. (LM ref. 8389)

Enhanced design of TBexclude dialogs in Linux. (LM ref. 8402)

TBmanager Section

NEW

Unable to launch Callgraph message displayed if Callgraph is requested and Static Analysis results do not exist.

(LM ref. 8262)

NEW

Tags column available in the Templates view during Project Setup and in the main TBmanager GUI. (LM ref. 8245)

CHG

Matrix View - Export CSV to Excel option is available on platforms that support Microsoft Office. (LM ref. 8285)

CHG

Enhanced consistency in the menus on the Project Setup Dialog. (LM ref. 8239)

Unable to launch Flowgraph message updated with addtional information on running Static Analysis. (LM ref. 8258)

Enhanced context menus in the Project Setup dialog. (LM ref. 8243, 8247, 8248)

None txt/html files do not open with the default OS associated application (LM ref. 8236, 8271)

Web Link menu opens reports as local files and not web based files. (LM ref. 8278)

Reports - Generate CSV from View... option no longer appends space after csv file extension. (LM ref. 8281)

Code Review TBvision option from TBmanager Verification dialog during Interactive Verification, invokes TBvision

displaying the appropriate Code Review results. (LM ref. 8274)

Updated location of TBmanager Support Files directory to be consistent across platforms. (LM ref. 8429, 8430)

Enhanced creation and population of Custom Attributes from a Polarion import. (LM ref. 8312, 8313)

Static Analysis Module

CHG

Enhanced Static Analysis. (LM ref. 8362)

CHG

Enhanced Static Analysis with respect to multi-line specifies. (LM ref. 8129)

CHG

Enhanced Static Analysis of inline assembly. (LM ref. 6349)

CHG

Enhanced detection of the size of anonymous structs and unions. (LM ref. 6884)

Enhanced Static Analysis. (LM ref. 8083)

Enhanced Static Analysis. (LM ref. 7900)

Enhanced Static Analysis. (LM ref. 8336)

Enhanced detection of beginning and end of lambda function bodies. (LM ref. 8342)

Enhanced detection of 550 S. This may result in more reported instances. (LM ref. 8128)

Enhanced Static Analysis. (LM ref. 8331)

Enhanced detection of 620 S. This may result in more reported instances. (LM ref. 5695)

Enhanced Static Analysis. (LM ref. 8242)

Enhanced Static Analysis. (LM ref. 6027)

Enhanced Static Analysis. (LM ref. 7551)

Enhanced Static Analysis. (LM ref. 7928)

Enhanced Static Analysis. (LM ref. 7910)

Enhanced MC/DC instrumentation. (LM ref. 8276)

Enhanced Static Analysis. (LM ref. 7955)

Enhanced Static Analysis. (LM ref. 8106)

Enhanced Static Analysis. (LM ref. 8267)

Enhanced Static Analysis. (LM ref. 8329)

Enhanced Static Analysis. (LM ref. 8341)

Enhanced Static Analysis. (LM ref. 8310)

Enhanced Static Analysis. (LM ref. 8343)

G

Enhanced detection of 489 S. This may result in more reported instances. (LM ref. 6733)

CHG

Enhanced source reformatting, ensuring spaces are inserted around the & and * characters. (LM ref. 7717)

CHG

Enhanced detection of 459 S. This may result in fewer reported instances. (LM ref. 7577)

CHG

Enhanced detection of 46 D. This may result in fewer reported instances. (LM ref. 7580)

C
H
G

Enhanced Static Analysis of inline assembly. (LM ref. 6348)

Enhanced Static Analysis. (LM ref. 8391)

Enhanced Static Analysis. (LM ref. 8449)

C++14 and C++17 language dialect settings to enable/disable language elements. (LM ref. 8330)

Data Flow Module

CHG

Enhanced detection of 128 D. This may result in fewer reported instances. (LM ref. 7734)

CHG

Enhanced detection of 17 D. This may result in fewer reported instances. (LM ref. 8266)

Instrumentation Module

CHG

Enhanced Instrumentation with respect to constexpr specifier. (LM ref. 8372)

CHG

Enhanced Structure Bitmap Instrumentation. (LM ref. 8371)

CHG

Enhanced Instrumentation of case statements. (LM ref. 8361)

FIX

Enhanced handling of very large file names. (LM ref. 6975)

Utilities Section

NEW

TBglhapi. Displaying of array bounds on the declaration type for members of structures. (LM ref. 7552)

NEW

Added Build Import guide to the Launcher. (LM ref. 8428)

NEW

Visual Studio Integration. Added Execution Options menu. (LM ref. 8447)

FIX

TBbuildimport. Compiler Preprocessing discovery for dialect analysis no longer runs automatically after BTF

creation.

LDRAlauncher. Workarea Management dialog displays the current Workarea path in use. (LM ref. 8298, 8451)

Documentation Section

CHG

Command Line. Added -profile= argument to Contbrun section. (LM ref. 8150)

CHG

Command Line. Added more context to the -renanlyse_set argument. (LM ref. 8422)

New Features for 9.8.1

TBrun Section

NEW

TBextreme. Enhanced user defined configuration options. Eight profiles are available

and the user can associate the TBextreme run (standard, tabular etc.) with a chosen configuration.

If no configuration is chosen, then the default settings will be used.

NEW

Filtering of ill-formed constant names from the dictionary so they are not applied in TBextreme.

NEW

Improved assignment of constructor initialisations in constructor stubs by assigning an initial

value to a member based on the most likely name match of parameter.

Improved resolution of template types particularly for nested types in a template class

and the type being scoped in the nested type matches a template argument.

Improved processing of declaration types with array bounds declared inside the instantiated template arguments.

Mutable has been removed from the declaration type of a member variable and now appears as a property in the API.

TBextreme. When stub parameter values are captured, for pointers , the value captured will be null or not-null.

If a driver program does not use exception handling, then the processing of output variables no longer checks if an exception was raised.

TBextreme. Expressions such as var = var &0xff are treated as an assignment expression and are applied to the test case as input and output

even if the variable is a dereference of a pointer.

Enhanced source code browser integration for Linux systems. (LM ref. 7625)

Improved assigning of constructor initialisers from the parameter list where the only difference in declaration

types between the member and the parameter is the location of the const keyword.

Improved assigning of constructor initialisers from the parameter list where the only difference in declaration

types between the member and the parameter is that the parameter is a reference to the member type.

TBextreme. Improved adding of dereferenced structure elements to test cases.

TBextreme. Improved adding of dereferenced variables to test cases.

TBextreme. Improved adding associated global variable pointed to by input variables

as output variables in the test case.

TBExtreme. Improved filtering of values applied to a variable when the values are numerically

equivalent but are displayed in different formats.

Improved initialisation of structure variables where all the elements of the structure are const data.

Improved generation of delta values for variables used in a loop, particularly when the loop

variable is evaluated using a division operation.

Removal of GPF when double clicking the Combined Coverage Run node. (LM ref. 8218)

FIX

Test Case dynamic dataflow coverage report. Improved matching of Test Case variables where

a dereference operator is used.

FIX

Enhanced selection of default browser for PDF files. (LM ref. 8113)

FIX

Handle source code browser specified with spaces and without quotes. (LM ref. 8082, 8188)

LDRA Testbed Section

CHG

Sysppvar generation. If adding the source directory as an include path for the preprocessor command,

this uses the compiler command line flag as defined by INI entry COMPILER_INCLUDE_PATH_FLAG (or

it's default values).

CHG

Dialect Generation. Generated macdat files have header file markers.

FIX

The help PDF on the Include File Option dialog is no longer showing with an incorrect personality. (LM ref. 8132)

Global Cross Reference failed to run correctly when rerunning Cross Reference phase

with one or more files failing analysis.

(Where continue_system_analysis has been enabled).

TBvision Section

NEW

Enhanced handling of invalid exclusions/notes in TBexclude.

To display all exclusions/notes (including those not valid for the currently

selected scope) set SCREEN_INVALID_EXCLUSIONS=FALSE or SCREEN_INVALID_NOTES=FALSE

in the INI file. (LM ref. 8095)

CHG

Enhanced handling of calls to the License Configuration Dialog. (LM ref. 8143)

FIX

Violations within a child of a Namespace were categorised as Namespace violations.

Namespace member function and variables, that were not reported on, are now included.

Linux - Enhanced configuration option dialogs. (LM ref. 8144)

TBexclude. Code Review report generated from context menu on Code Review view correctly processes

exclusions that have macro expansion elements.

TBmanager Section

NEW

Integration with codeBeamer ALM (Intland Software).

NEW

Integration with PTC Integrity.

NEW

Polarion integration now available on Linux/Mac platforms.

NEW

Import Filters available to third party integrations to further filter what is imported to each Group.

Configuration to choose which attributes have write privileges available to third party integrations.

Documentation for installed integrations is available from the Help menu.

Integration with SILKROAD ALM enhanced.

Integration with Jama enhanced - Users with existing Jama configurations will be required to update their

configurations.

Jama Integration - Integration is now provided as a separate deliverable.

Integration with Polarion enhanced - Users with existing Polarion configurations will be required to update their

configurations.

Polarion integration - Use of profiles in TBmanager is no longer required.

Polarion integration - Updated default query text for Requirement import to include system and software

requirements as well as default requirement types.

Polarion integration - Confirmed that Polarion API access is granted when using self signed SSL

certificates providing the user installs the public SSL certificate into their Java key store.

Polarion Integration - Integration is now provided as a separate deliverable.

SystemWeaver integration - Updated dialogs for Import and Export of items.

SystemWeaver integration - Enhanced to import traceability between items.

JIRA Integration - Enhanced importing of the Labels field.

Added Filter mechanism to Integration import to allow further filtering of imported data.

Removed restriction that Requirement Name requires a value on the Edit Requirement dialog.

Excel Integration - By default, split characters will only be set for $(RefReq) and $(TciParent). (LM ref. 7394)

Support added to display procedures that are included via an include statement but not from

a traditional header file. e.g. a .c file including another .c file. (LM ref. 7168)

PDF import - New icon on Open Document button. (LM ref. 8217)

FIX

Polarion integration - Enhanced import of items with descriptions containing line breaks or other white

space formatting characters. (LM ref. 7024)

FIX

Polarion integration - Enhanced reporting if no items are returned from the server based on the query string.

FIX

Enhanced import of items from tbmspec files with malformed parent requirement references.

FIX

TBmanager Integration enhancements. (LM ref. 6819, 7019, 7071, 7323)

Enhanced handling of blank/empty rows in between items during Excel import. (LM ref. 8089)

Properties such as const are now included in return types when analysing source code. (LM ref. 8145)

Enhanced importing of trackers in the codeBeamer integration. (LM ref. 8196)

Enhanced installation configuration of the SystemWeaver Integration. (LM ref. 8203)

Enhanced resource selection in Project Setup. (LM ref. 8240)

Static Analysis Module

CHG

Enhanced detection of 582 S. This may result in fewer reported instances. (LM ref. 7591)

CHG

Enhanced detection of 59 S. This may result in fewer reported instances. (LM ref. 8077)

CHG

Enhanced detection of 692 S. This may result in fewer reported instances. (LM ref. 8078)

CHG

Enhanced detection of 47 S. This may result in fewer reported instances. (LM ref. 7961)

Enhanced detection of 114 S. This may result in fewer reported instances. (LM ref. 7639)

Enhanced detection of 57 S. This may result in fewer reported instances. (LM ref. 7595)

Enhanced detection of 560 S. This may result in fewer reported instances. (LM ref. 8069)

Enhanced detection of 1 J. This may result in more reported instances. (LM ref. 7810)

Enhanced static analysis. (LM ref. 8083)

Enhanced static analysis. (LM ref. 8085)

Data Flow Module

CHG

Enhanced detection of 137 D. This may result in fewer reported instances. (LM ref. 8076)

Instrumentation Module

CHG

The type specified by the INTZZQ field is used for the definition of aqqqmcdcstore.

If this type is changed, declarations in c/cppinstr.dat may also need to be changed to match. (LM ref. 8185)

CHG

Enhanced Bitmap (Bitmap MC/DC) instrumentation. (LM ref. 8009, 8029, 8112)

Dynamic Coverage Module

CHG

Enhanced Dynamic Analysis for Bitmap (Hitmap MC/DC). (LM ref. 8190)

Utilities Section

NEW

Visual Studio Plugin - Visual Studio 19 is now supported.

CHG

Enhanced handling of calls to Source Code Browsers from Launcher. (LM ref. 8184, 8187)

CHG

Enhanced top menu options in the Visual Studio Plugins. (LM ref. 8191)

CHG

Enhanced menu options available in the Eclipse Plugin on Linux. (LM ref. 8219)

Enhanced consistency across the Safe_Utilities example project on Linux. (LM ref. 8272, 8273)

Documentation Section

FIX

Updated TBmanager Documentation. (LM ref. 8193)

New Features for 9.8.0

TBrun Section

NEW

When running from the command line, if the execution command of the harness times out,

then when the application closes, it will return the exit code 93. (LM ref. 8007)

NEW

C++ / TBextreme. Improved generation of values for array type pointers when a constraint has been deduced.

NEW

Improved detection of parameters being treated as input and output due to a sub-element being dereferenced and

defined.

Improved casting of declaration types by not removing the const keyword.

Delta values applied to types lying outside of the analysis scope will be cast.

TBextreme. Improved generation of output variables for parameter pointers to structures where the pointer is

indexed as if it was an array.

TBextreme. Improved capturing of pointers sub-elements of variables added that are pointed to by inputs.

Enhanced handling of alternative source code browsers. (LM ref. 8082)

Function Unit icons no longer reduce in size when a sequence loaded or created. (LM ref. 8020)

LDRA Testbed Section

CHG

When using a cppen.dat from a previous release, which has AUTOSAR-C++ rule numbers,

these will be displayed as AUTOSAR-C++:17-03 rule numbers.

FIX

Shorten did not add full path of expanded header files in some cases

leading to incorrect reformatted to source line conversion.

FIX

Source to reformatted line conversion for the last line in the file

matches the conversion for other lines, aligning to the last matching

reformatted line instead of the first.

TBvision Section

FIX

Improved processing of mapped standards when using data files from previous

releases. For example CERT-C will map to CERT-C:2014 if CERT-C:2016 is not available.

FIX

Model overrides of category or flags for some violations were not correctly processed.

TBmanager Section

NEW

Jira Integration.

Ability to import Jira Items into TBmanager as Requirements or Test Cases.

Export to Jira is available to update items that have been imported into TBmanager from Jira.

CHG

Enhanced handling of symbol characters when importing from Excel. (LM ref. 8074)

Static Analysis Module

CHG

Enhanced detection of 90 S. This may result in fewer reported instances. (LM ref. 7620)

CHG

Enhanced detection of 47 S. (LM ref. 1953, 3091, 4106, 4676, 4689, 4708, 4709, 4878, 4902, 5090, 5153, 5254, 5453, 5619, 5756, 6350, 6734, 6991, 7014, 7109, 7134, 7389, 7525)

CHG

Enhanced detection of 123 S. (LM ref. 3971)

CHG

Enhanced handling of C++ auto keyword and uniform initialisation. (LM ref. 7313)

Enhanced detection of 369 S. This may result in more reported instances. (LM ref. 7233)

Enhanced detection of 476 S. This may result in fewer reported instances. (LM ref. 7311)

Enhanced handlings of unions. (LM ref. 7522)

Enhanced detection of 41 S. This may result in fewer reported instances. (LM ref. 7652)

Enhanced handling of variable declarations using typename keyword. (LM ref. 7780, 7802)

Enhanced detection of 446 S. This may result in fewer reported instances. (LM ref. 6165)

Enhanced detection of 629 S. This may result in more reported instances. (LM ref. 7769)

Enhanced detection of 577 S. This may result in more reported instances. (LM ref. 5800)

Enhanced detection of 20 D. This may result in fewer reported instances. (LM ref. 6394)

Penalty 699 S Macro terminated with semi-colon. (LM ref. 7970)

Enhanced detection of 56 S. This may result in more reported instances. (LM ref. 7306)

Enhanced detection of 629 S. This may result in more reported instances. (LM ref. 7912, 7913)

Enhanced detection of 286 S. (LM ref. 5861)

Enhanced detection of 286 S. This may result in fewer reported instances. (LM ref. 6036, 6916, 7629)

Enhanced detection of 441 S and 444 S. This may result in fewer reported instances. (LM ref. 7545)

Enhanced detection of 114 S. This may result in fewer reported instances. (LM ref. 7406)

Enhanced detection of 306 S. This may result in fewer reported instances. (LM ref. 6624, 7643)

Enhanced detection of 629 S. This may result in fewer reported instances. (LM ref. 5646, 6089, 6091)

Enhanced detection of 340 S. This may result in more reported instances. (LM ref. 1960, 6769, 7187)

Enhanced detection of 190 S. This may result in fewer reported instances. (LM ref. 7403)

G

Enhanced detection of 114 S. This may result in fewer reported instances. (LM ref. 7933)

CHG

Enhanced detection of 139 S. This may result in fewer reported instances. (LM ref. 7408)

CHG

Enhanced detection of 59 S. This may result in fewer reported instances. (LM ref. 8044)

CHG

Enhanced detection of 623 S. This may result in fewer reported instances. (LM ref. 7870)

C
H
G

Enhanced detection of 459 S. This may result in fewer reported instances. (LM ref. 6031)

Enhanced detection of 489 S. This may result in more reported instances. (LM ref. 6733, 7779)

Enhanced detection of 303 S. This may result in fewer reported instances. (LM ref. 7459)

Enhanced detection of 69 X. This may result in fewer reported instances. (LM ref. 3091)

Enhanced detection of 139 S. (LM ref. 4959, 5724, 5749, 5834, 7144)

Enhanced detection of lambda functions nested in parameter lists. (LM ref. 7421)

Enhanced detection of 221 S. This may result in fewer reported instances. (LM ref. 5401)

Enhanced detection of 439 S. This may result in fewer reported instances. (LM ref. 4844)

Enhanced static analysis. (LM ref. 7925)

Enhanced detection of 127 D. This may result in more reported instances. (LM ref. 7911)

Enhanced detection of 629 S. This may result in fewer reported instances. (LM ref. 7915)

Enhanced detection of 560 S. This may result in fewer reported instances. (LM ref. 7634, 7592, 7874)

Enhanced detection of 434 S. This may result in fewer reported instances. (LM ref. 7862)

Enhanced instrumentation regarding classes defined in non-instrumented header files. (LM ref. 7966)

Enhanced detection of 433 S. This may result in fewer reported instances. (LM ref. 7235)

Enhanced detection of 3 X. This may result in fewer reported instances. (LM ref. 7621)

Enhanced detection of 76 D. This may result in fewer reported instances. (LM ref. 7347)

Enhanced detection of 382 S. This may result in fewer reported instances. (LM ref. 7877)

Enhanced detection of 435 S. This may result in fewer reported instances. (LM ref. 6870)

Enhanced detection of 139 S. (LM ref. 1855, 5781, 5892, 6509, 7162, 7375, 7431, 7432)

Enhanced detection of 458 S. This may result in fewer reported instances. (LM ref. 7893)

CHG

Enhanced detection of 9 S. This may result in fewer reported instances. (LM ref. 7099)

CHG

Enhanced instrumentation regarding classes defined in non-instrumented header files. (LM ref. 8001)

CHG

Enhanced detection of 283 S. This may result in fewer reported instances. (LM ref. 7346)

CHG

Enhanced detection of 71 S. This may result in fewer reported instances. (LM ref. 7078)

CHG

Enhanced detection of 105 D. This may result in fewer reported instances. (LM ref. 7866)

Enhanced detection of 114 S. This may result in fewer reported instances. (LM ref. 7344)

Enhanced detection of 71 S. This may result in fewer reported instances. (LM ref. 7581)

Enhanced detection of 57 S. This may result in fewer reported instances. (LM ref. 7595)

Enhanced detection of 620 S. (LM ref. 8046)

Enhanced handling of malloc and free when analysed with the CWE model. (LM ref. 6357)

Enhanced static analysis. (LM ref. 7310)

Enhanced detection of 306 S. This may result in fewer reported instances. (LM ref. 7863)

Data Flow Module

CHG

Enhanced detection of 45 D. This may result in fewer reported instances. (LM ref. 7720)

CHG

Enhanced detection of 63 D. This may result in fewer reported instances. (LM ref. 6872)

CHG

Enhanced detection of 91 D. This may result in fewer reported instances.

Cross Reference Module

CHG

Enhanced detection of 3 X. This may result in fewer reported instances. (LM ref. 7412)

CHG

Enhanced detection of 80 X. This may result in more reported instances. (LM ref. 7769)

C/C++ Penalties and Standards Mappings

NEW

MISRA-C:2012(Ed 3 Rev 1) standard model - MISRA C:2012 Guidelines for the use of the C language in critical systems (Third Edition, first revision).

MISRA-C:2012 now refers to this version.

NEW

Penalty 692 S Array index is negative.

NEW

Penalty 699 S Macro terminated with semi-colon.

CHG

Updated LDRA_NOANALYSIS description in Testbed Manual. (LM ref. 7968)