

LDRA Productivity Package for Aerospace and Defense

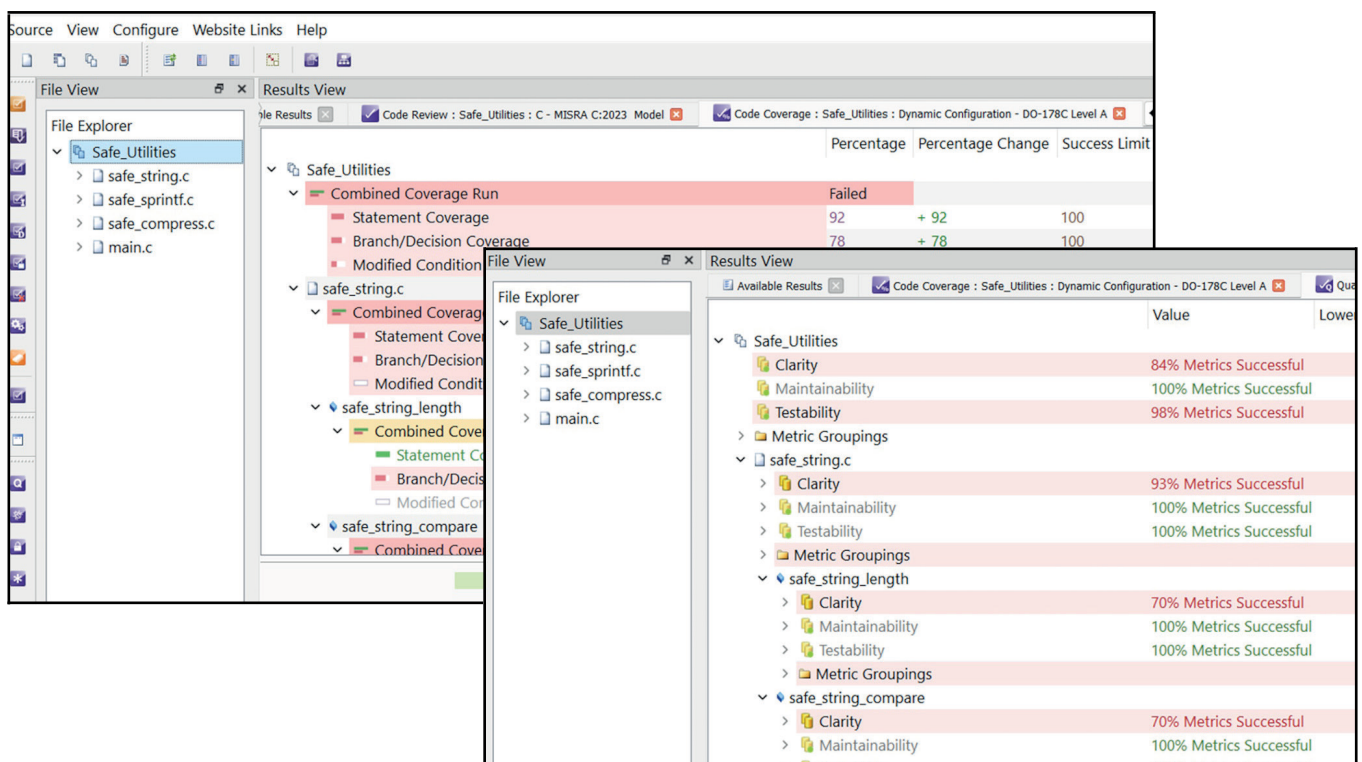
LDRA Productivity Package for Aerospace and Defense

The LDRA Productivity Package for Aerospace and Defense is a set of targeted capabilities drawn from the LDRA tool suite enabling customers to achieve DO-178C compliance through Design Assurance Level A, the highest level of assurance for airborne software. The productivity package optionally supports the development of software in accordance with defense standards including MIL-HDBK-516C, DEF-STAN 00-055, and the Future Airborne Capability Environment® Technical Standard.



The package includes LDRA's best in class capabilities for the development and verification of aerospace and defense software. The package's flexibility and scalability addresses the changing needs of the most demanding projects and enhances collaboration across large and small teams, making it ideal for use at any point in the software development lifecycle. The breadth of capabilities included in the package make it suitable for use in both the commercial and defense sectors, as well for the development of software to varying levels of assurance.

The LDRA Productivity Package for Aerospace and Defense embraces both static and dynamic analysis techniques to encompasses a wide range of essential features designed to ensure compliance with functional safety and security standards.



Static code analysis is used to evaluate code quality and gather critical metrics. It enables checking against the rules defined by coding standards such as MISRA, CERT, CWE and JSF, in addition to user configurable rules sets.

Dynamic analysis capabilities include unit, integration and system level testing on simulators and target hardware alike. Structural coverage analysis including MC/DC enables the assessment of coverage statistics and the implementation of requirements-based and on-target testing, while the analysis of data coupling and control coupling helps to ensure that source code is implemented in accordance with its developer's intentions.

Reporting of both static and dynamic analyses is tuned to industry requirements and formatted to reflect the objectives of standards such as DO-178C, MIL-HDBK-516C, and DEF-STAN 00-055. Optional add-on capabilities including requirements traceability, web-based project reporting of testing and analysis results, worst-case execution time analysis, tool qualification packages, and object to source code traceability and coverage as required by DO-178C DAL A. These capabilities complement the base productivity package to provide a comprehensive toolkit for ensuring the highest level of assurance in the development of land-based and airborne software, meeting the rigorous standards of the aerospace and defense industries.

The screenshot displays two overlapping windows from the LDRA software. The top window, titled 'LDRA', shows a sidebar with a tree view containing 'DO-178C Compliance', 'Test Manager', 'Code Review', 'Quality Review', 'Code Coverage', 'Control Coupling', 'Data Coupling', and 'MC/DC Test Case Planner'. The main area displays 'Table A-7 Verification of Verification Process Results'.

Table	Objective	Ref	Applicability by Software Level			
	# Description		A	B	C	D
A-7 Verification of Verification Process Results	1 Test procedures are correct.	6.4.5.b	SI	S	S	
	2 Test results are correct and discrepancies explained.	6.4.5.c	SI	S	S	
	3 Test coverage of high-level requirements is achieved.	6.4.4.a	SI	S	S	S
	4 Test coverage of low-level requirements is achieved.	6.4.4.b	SI	S	S	

The bottom window, also titled 'LDRA', shows the same sidebar. The main area displays 'LDRA Productivity Package for Aerospace & Defense Control Coupling Overview Report'. It specifies 'System Set: Safe_Uilities' and 'DO-178C Level A'. Below this is a 'Files' section with a table showing control coupling coverage for four files.

Name	Control Couples	Control Coupling Coverage
main.c	12	100%
safe_compress.c	0	n/a
safe_sprintf.c	5	100%
safe_string.c	0	n/a

The LDRA Productivity Package for Aerospace and Defense at a glance:

- Functional safety and security standards compliance with DO-178C, and optionally with ARP 4754A, DO-331, MIL-HDBK-516C, DEF-STAN 00-055, and the Future Airborne Capability Environment
- Static code analysis including key quality, complexity and testability metrics
- Coding standards compliance including MISRA, CERT, and CWE for both C and C++, along with many other commercially available coding standards
- The ability to define your own coding standards
- Dynamic structural coverage analysis including MC/DC
- Unit and system level testing on target hardware
- Requirements-based and on-target testing
- Security analysis and reporting, including taint analysis
- Data coupling and control coupling analysis
- Can be extended through add-on capabilities including requirements traceability, web-based projectlevel reporting, worst-case execution time analysis, tool qualification packages, and object to source code traceability and coverage
- Breadth of capabilities meets the needs of most commercial and defense software development and verification projects
- Flexibility and scalability to support projects at any point in the lifecycle

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