



Collins Aerospace



Safety through quality

CASE STUDY



Supporting Collins Aerospace with DO-178C Enterprise Tool Qualification (RVS)

Case study: Qualification services (RVS)

“The quality and ease-of-use of Rapita’s Qualification products and services is second to none and made the adoption of RVS simple and pain-free.”

Collins Aerospace, a Raytheon Technologies subsidiary, is one of the world’s largest suppliers of aerospace and defense products. Collins Aerospace specializes in aerostructures, avionics, interiors, mechanical systems, mission systems, and power and control systems. Find out more on their website at collinsaerospace.com.



Rapita supports Collins Aerospace with enterprise verification tooling. The Rapita **Verification Suite (RVS)** enables Collins Aerospace to efficiently develop software, up to and including DAL A software, to DO-178C guidelines.



The challenge

Collins Aerospace are an enterprise-level user of **RVS**, using the tools across multiple projects. In many cases, **RVS** has been adopted to replace other tools across the Collins organization. It was important for this large organization that transitioning from other tools was simple and that qualification of the new tools was low-risk.

Collins Aerospace have their own internal certification department, therefore it is important that the tools they use fit with their existing processes and are qualified to TQL Level 5 as per DO-178C guidance. The tools Collins adopt also need to support a range of DAL levels including DAL A.

The solution

The Rapita **Verification Suite** is designed for the aerospace industry and is optimized to make qualifying its use for DO-178C projects efficient.

Collins Aerospace’s central certification team were able to take advantage of Rapita’s best-in-class Tool Qualification Kits and Qualified Target Integration Services to support their internal and external certification activities.

Summary

The challenge

- Replace various legacy tools with **RVS**
- Provide qualification support for certification

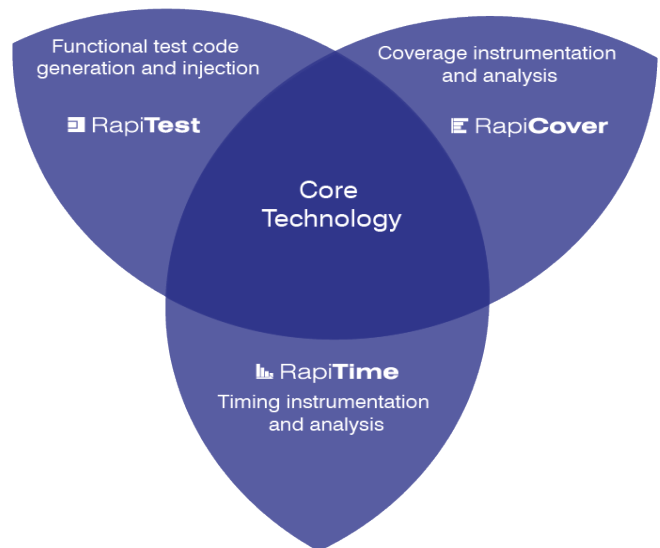
The solution

- Enterprise tooling
- DO-178C **Qualification Kits** and **Qualified Target Integration Services**

The benefits

- Quality and simplicity of Qualification Kits
- Efficiency of Qualified Target Integration Services and robustness of integration
- Flexible Qualification Kit licensing options
- First-class support

RVS Qualification kit



Rapita customize your qualification material for the RVS products you are using and the source code language(s) used in your project.

Rapita’s Qualification Kits are extensive, including over 1,200 tests and 180,000 LOC, and have been used as standalone evidence of tool robustness for DO-178B/C DAL A/B projects. They provide the evidence needed to demonstrate that **RVS** tools are robust in a general environment.

Rapita Qualification Kits also include a powerful HTML interface that can be used to explore and explain the various documents contained in the kit, making it easy for new users to adopt them.

To complete the evidence needed for DO-178B/C qualification, Collins Aerospace used Rapita's Qualified Target Integration Service (QTIS) to supplement generic Qualification Kits with evidence that their environment uses **RVS** in accordance with the scope of the Qualification Kit.

The Qualification Target Integration Service includes round-trip tests to exercise key features of an integration, the expected results from running those tests on the system, and an Integration Qualification Report that summarizes the integration analysis and any further conditions for the continued, qualified use of the integration.

The benefits

Collins Aerospace found **RVS** Qualification Kits accurate and complete, and compared to other tool providers' qualification materials, easier to integrate into their processes. Features like the information in the qualification kit being streamlined to just the **RVS** tools and programming languages used in the project, and the qualification kit contents being presented through a helpful HTML front page also made qualification activities more efficient.

Rapita's Field Application Engineers provided Collins Aerospace with Qualified Target Integration Services that produced efficient and reliable deployments.

Collins Aerospace were also able to choose the licensing option that best fit their needs. Rapita offer a range of flexible licensing options for Qualification Kits including single use, re-useable and product line options.

"The qualification and deployment of a new tool takes effort, but the Rapita team have an excellent qualification solution and worked closely with us to produce an efficient deployment. The quality and ease-of-use of Rapita's Qualification products and services is second to none and made the adoption of **RVS** simple and pain-free."

Kyle Ford

Principal Software Engineer, TSO Certification Representative, Design Certification Engineering
Collins Aerospace

Next steps

To learn more about how Rapita can help reduce the cost and effort of your qualification activities, visit our Qualification services webpage at rapitasystems.com/services/qualification.

To find out more about what Rapita can do for you, contact us at info@rapitasystems.com.

RapiCover Developer Tool qualification kit
 This is the developer tool qualification kit for RapiCover 3.13.

Contents of the Qualification Kit

TQP TAS
 TQP TAS
 TQS { Internal processes + TCD

Key Features

- Qualified source code analysis engine
- Qualified source code instrumentation and injection
- Qualified target coverage analysis
- Qualified coverage selection and merging between reports
- Qualified justification application and migration
- Qualified coverage export
- Includes coverage reporting via RapiTest export

[See qualified feature details and change logs](#)

Configuration

Tool and Version: RapiCover 3.13
 Languages: C, C++, Ada
 Applicable Guidance: DO-330 (TQL-5), DO-178C
 Supported profiles:

	DAL A	DAL B	DAL C
Function Entry	X	X	X
Function Exit	X	X	
Statements	X	X	X
Literal Decisions	X	X	
Branching Decisions	X	X	
MCDC	X		

Rapita's Qualification Kits include a powerful HTML interface to explore and explain the various documents they contain.



About Rapita

Rapita Systems provides on-target software verification tools and services globally to the embedded aerospace and automotive electronics industries.

Our solutions help to increase software quality, deliver evidence to meet safety and certification objectives and reduce costs.

Find out more

A range of free high-quality materials are available at:
rapitasystems.com/downloads

SUPPORTING CUSTOMERS WITH:

Tools

Rapita **Verification Suite:**

Rapi**Test**

Rapi**Cover**

Rapi**Time**

Rapi**Task**

Engineering Services

V&V Services

Integration Services

Qualification

SW/HW Engineering

Compiler Verification

Multicore verification

MACH¹⁷⁸

Multicore Timing Solution

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