DOFware

DASSAULT SYSTEMES

REQTIFY™

Traceability Automation
Improve your control over safety-critical projects

*Compliant with **safety standards** like IEC-61508, ISO26262, DO178C/254*

THE PATH TO A MORE FLEXIBLE, EFFICIENT AND EFFECTIVE PRODUCT DESIGN

In recent decades, to address systems increasing complexity and the need for rigorous certification constraints compliance, companies have turned to Requirement Engineering, which progressively became a "best practice" to increase product quality and reduce development times and costs.

However, the adoption of this methodology, based on the identification of requirements, can face several difficulties, like information tracking, due to project data often being scattered in many places, insufficient requirement elicitation, or poor requirement impact analysis. These issues are often found late, when the design is in the advanced stages of verification and validation, producing a high impact on the development costs and time.

DOFWARE proposes REQTIFY, part of the CATIA offer of Dassault Systèmes, as the leading solution for supporting companies in addressing the need for full traceability (both forward and backward) of requirements, as well as for keeping track of the impact that design changes have on them.

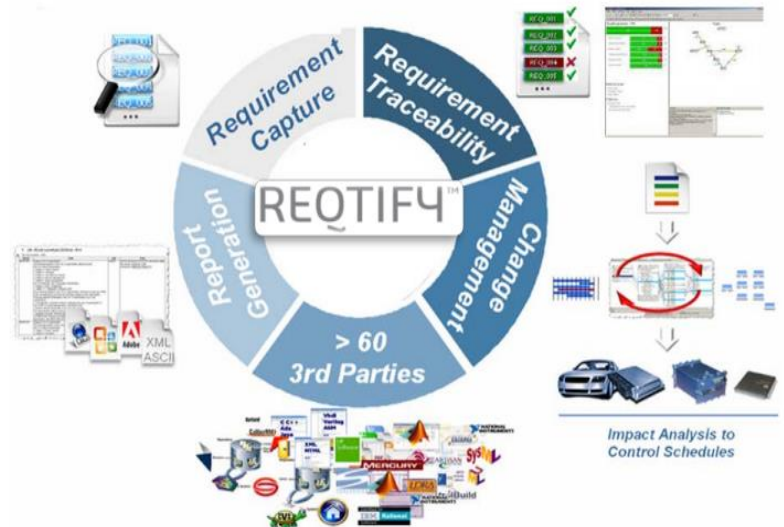# REQTIFY – A REQUIREMENT TRACEABILITY AND IMPACT ANALYSIS TOOL

REQTIFY can **trace requirements** from system, program and project levels **throughout the entire development lifecycle** of your software or hardware component.

REQTIFY can **capture traceable information** like requirements, implementation artefacts, tests, defects, etc.) in a wide variety of data formats, document types and tools:

- corporate requirement repositories, such as DOORS™, RequisitePro™, Integrity™;

- office type documents such as Microsoft Word, Excel, Adobe FrameMaker and PDF;

- SysML/UML Design tools such as Artisan Studio, Enterprise Architect; Catia Magic;

- CAE tools such as Simulink, Dymola;

- code files such as C, Ada, C++, Java or VHDL;

- information in standard text format, such as Html, XML or ReqIF.

REQTIFY was not developed to compete with your existing tools but to **help** you **overcome the connectivity limitations** given by existing heterogeneous tool environments. Thanks to its openness, REQTIFY ensures its seamless **integration without having to change the processes in use**.

With interfaces to more than 100 applications and data sources, **REQTIFY connects all the information** from adopted tools by automatically adding traceability support to your projects.

Impact Analysis to Control Schedules

REQTIFY was developed for Airbus as the initial customer to be a non-intrusive tool. **Three** important **guide lines has used** to ensure this:

1. No changes to the existing tool environments

REQTIFY only connects to your current tools, it does not replace them. Thanks to its interfaces, REQTIFY reads information from the different tools, while users can continue to work with their legacy tool environments.
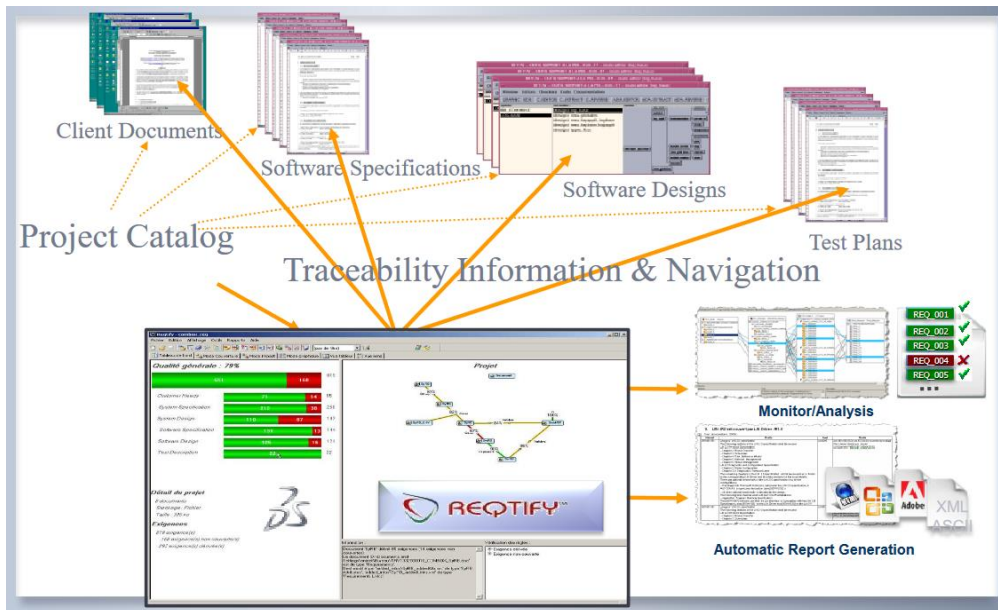
2. No changes to existing processes

REQTIFY simplifies existing processes by automating the work required to monitor projects. REQTIFY provides automated coverage and impact analyses as well as important KPIs on project status.

3. Minimal training overhead for team members

The tool quick learning curve allows users to master all REQTIFY' s features in no more than 1 or 2 days training.

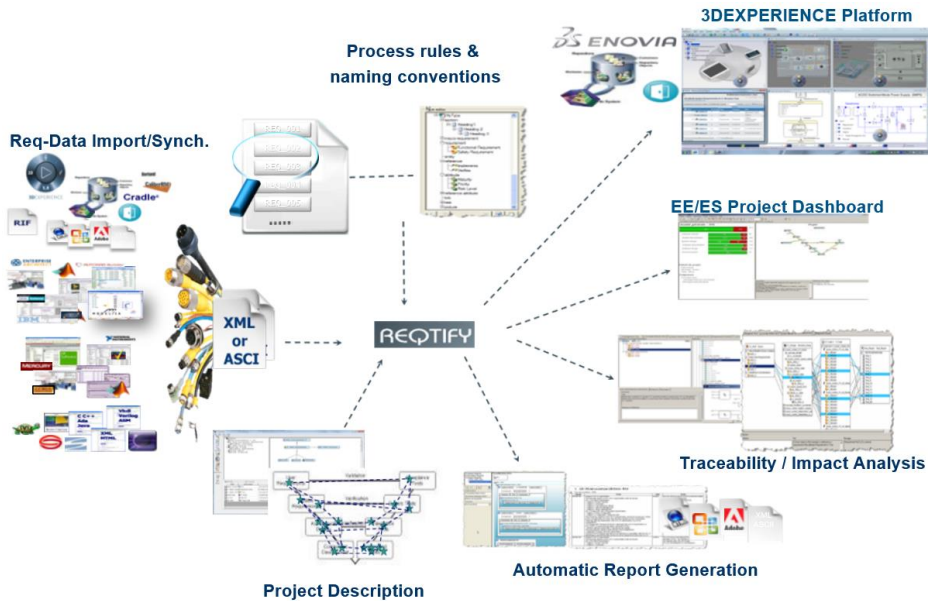# REQTIFY AS THE "GLUE TOOL"

Tool environments that have grown over the years and are commonly used in production are in the best case **loosely connected**, if not connected at all. We have a large number of specialized tools (e.g. DOORS, Magic Draw, Simulink, LabView, Scade, Word, Excel, etc.), each of them inevitably supporting an important part of the development cycle. In addition, these tools are most likely purchased by companies at different times, from different vendors and for different purposes. Hence, it is not surprising that **these tools struggle to communicate with each other**, if not at all. However, all the tools involved in the development process contain important information about the requirements they refer to. Looking at the whole process from a higher perspective, it is easy to understand that requirements are the centre of product development and that it is **important to connect all the information ensuring traceability**.

In this situation, there are **two options** to bring your data together.

The first one is to **replace all your tools and processes and purchase new interfaceable tools**. However, this approach is difficult to apply in the short period as it requires changes in the processes as well as personnel training. The second option relies on the **introduction of one new tool** only that is **capable to connect to the other tools**, thus bringing the data together and **creating** the desired **traceability**. This is exactly what REQTIFY does.

REQTIFY tightly connects and integrates all of your data and creates new ways to effectively use it. Given this feature, many users refer to REQTIFY as the "Glue-Tool" . It glues data together that should be connected.

HOW DOES REQTIFY WORK?

Process rules & naming conventions

Req-Data Import/Synch.

3DEXPERIENCE Platform

EE/ES Project Dashboard

XML or ASCI

Traceability / Impact Analysis
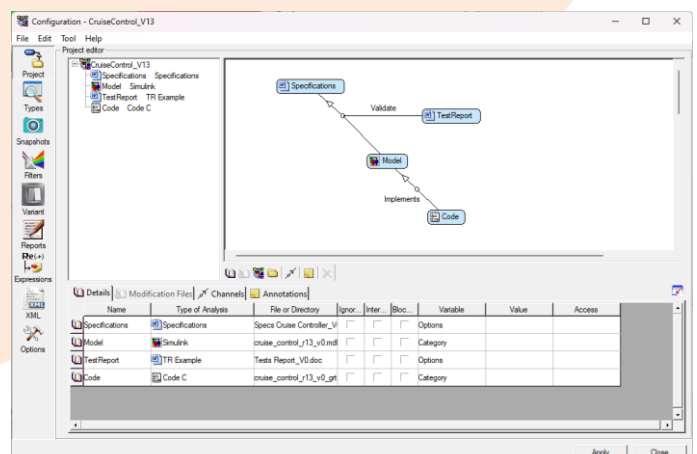
Project Description

Automatic Report Generation

REQTIFY's workflow consists of different steps:

1. The information from all the involved tools is converted into XML or ASCII and copied into an **intermediate file**. From there, the converted data will be copied into the REQTIFY project's repository. The **imported information is used as reference only** and will not be changed by REQTIFY. Your original tool will remain to be the master source for the information.

2. The data is **analysed according to** your specific **project configuration**. In the configuration window (see figure on the right) you select one by one the desired type and file of your data. The selected files are **connected by** simply drawing **arrows** between data sources. The direction of the arrow symbolizes the **coverage direction** for our traceability purpose. The example shows a case where a Word document, containing the main requirements, is covered by a Simulink design model and by a Word test report.

In addition, the Simulink model is implemented by some C code.

3. After drawing the traceability links, by pressing the OK button **REQTIFY will automatically retrieve and maintain aligned all the information** to create the traceability across all your documents.

After all data files and data sources have been imported into the newly created project, REQTIFY can now create many different **analyses**. The results can be accessed either from within REQTIFY or can be exported as reports.
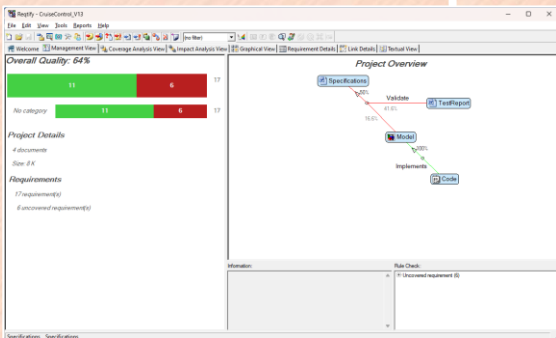
REQTIFY MAIN ANALISYS VIEWS
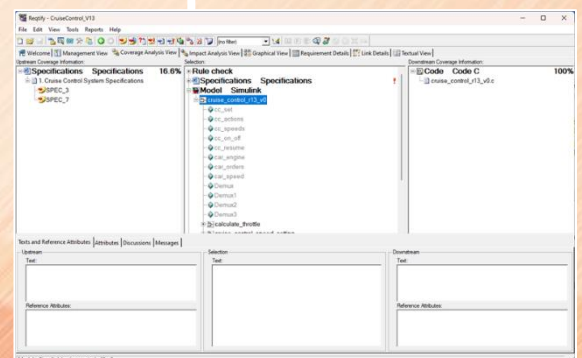

MANAGEMENT VIEW

It gives a lot of project level information:

- Instant view of your **project status** in terms of the requirement to cover.
- **Coverage metrics** between documents and global project quality metrics.
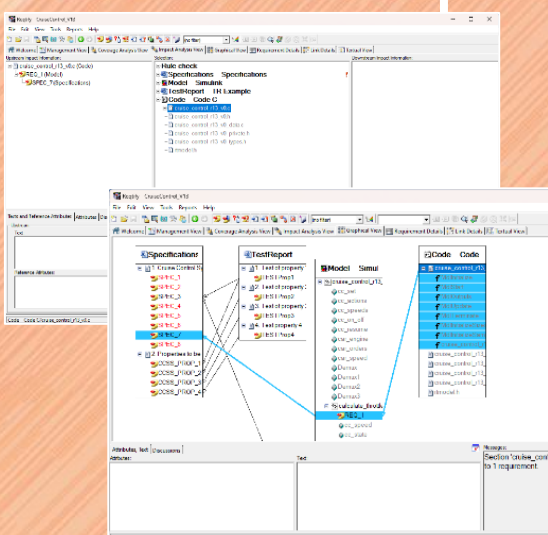- **Pending errors and warnings**.

COVERAGE ANALISYS VIEW

It gives you information on what is already covered and what is still uncovered at a specific level of you project. It **highlights the dependencies one level above and below** the currently selected document.
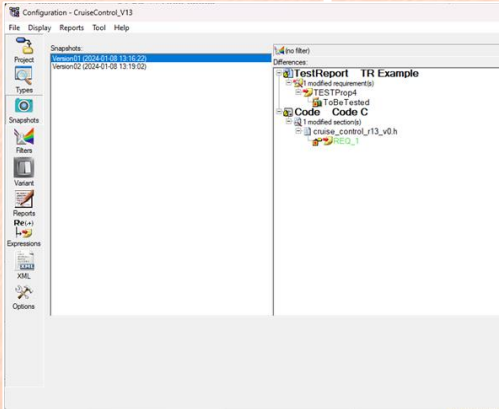

IMPACT ANALYSIS AND GRAPHICAL VIEWS

They offer the same information with two different representations.

Both views show all the **linked elements** of a given requirement **throughout every level of your project**, allowing you to navigate quickly from one project artifact to another.

REQTIFY ADDITIONAL FEATURES

HISTORY, BASELINES AND SNAPSHOTS

It is possible to maintain a history of different project stages. These are called **snapshots** in REQTIFY.

Snapshots are read-only versions of the project which can be created for allowing users to **monitor the project progress**, thus providing a mean to answer questions like:

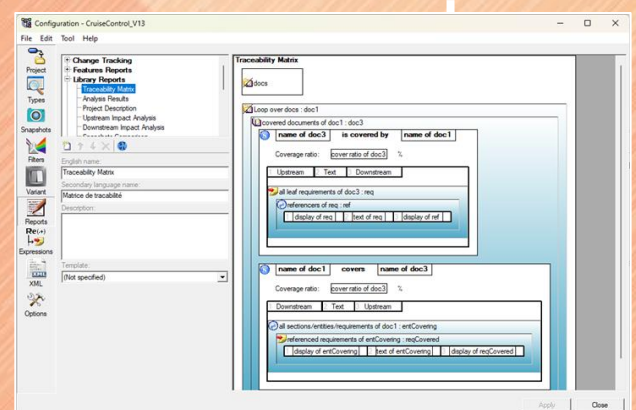*"What requirements have changed? How is the coverage of my requirements progressing?"*

Snapshots of the REQTIFY project **can be easily compared**, thus allowing tight control over the project phases.
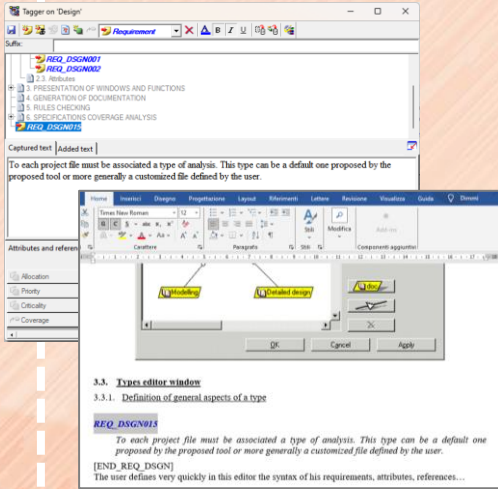
REPORT GENERATION

All project information gathered by REQTIFY can be used for reports. A number of **standard reports** are shipped with the product (e.g. *Traceability Matrix, Analysis Results, Project Description*, etc.).

In addition, REQTIFY comes with a **report editor** for customizing existing reports or creating new ones from scratch.

Reports can then be **saved in different formats** such as Word, Excel, HTML, PDF.

REQTIFY PLUG-INS

REQTIFY-TAGGER (RQG)

Requirements engineering results in a large number of practices. One of them is to specify what the system shall do by eliciting its requirements. By definition, each requirement shall have at least a unique identifier and a description and can be categorized and classified with dedicated attributes.
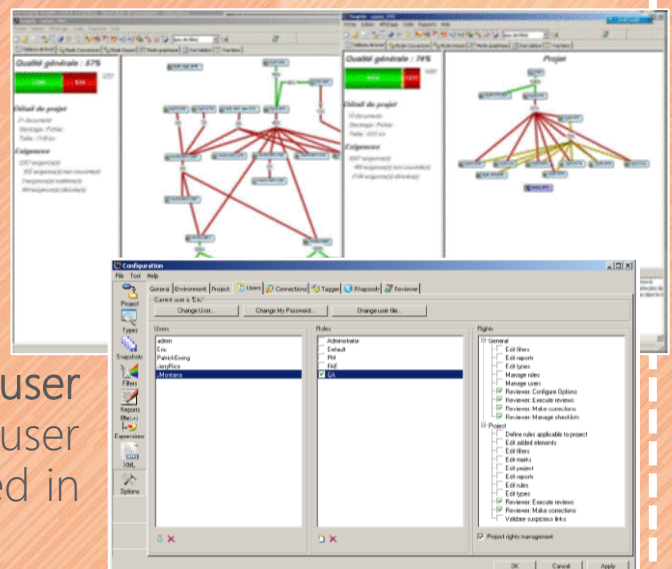
The **Tagger** plugin gives you the capability to **automatically identify requirements** and their attributes and to **capture all of them within REQTIFY**, which may prove helpful during the specification writing phase or during the specification negotiation phase.

REQTIFY-CPM (RCP) (Collaborative Project Management)

REQTIFY includes the **Collaborative Project Management** plugin which considerably eases a previously painful and time-consuming process for OEMs relating to the **merging and management of design partners' requirements and traceability data.**

This enables remote teams to more easily undertake **global impact analysis**, measure requirements coverage and **share results on an entire project** throughout the development lifecycle.

The CPM plug-in includes a **specific user management module** allowing user profiles, rights and roles to be defined in order to **facilitate access control**.

REQTIFY PLUG-INS

REQTIFY-REVIEWER (RQV)

Quality Standards objectives and Safety Critical Application Development are requesting more and more **review activities all along the product or project development lifecycle**. Requirements, Specifications, Design, Code and Processes, all of them need to be reviewed for each deliverable in order to **prove the compliancy to standards**.
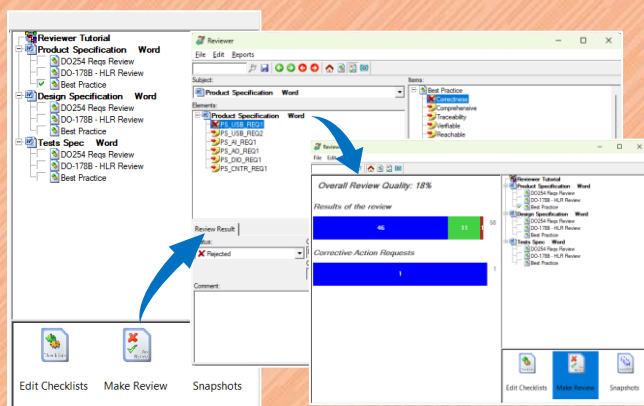
REQTIFY Reviewer Plug-in is an easy way to **organize** and to **control** those **review activities** with intuitive checklist editors, multi-user review management with control access rights and reviewer's profiles customization, Automatic review report generation and Overall Review Monitor.

Several **best practices** checklist and **standards packs** are **available** for ISO26262, DO178B/C, DO254, FDA and CMMI.

This plugin **supports users in the verification phase** by allowing to:

- **Define checklists** containing items to be reviewed to be applied to the project traceability elements.

- Define which standards each document should be compliant to.

- Define corrective actions.

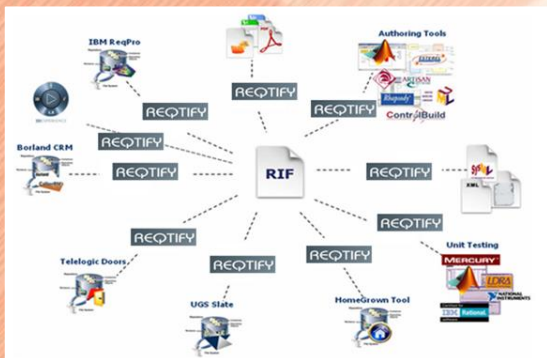- Assign priorities.

- Generating review reports.

REQTIFY PLUG-INS

REQTIFY-ReqIF Gateway (RQR)

ReqIF (Requirement Interchange Format) has been specified by HIS, a joint standard initiative of the German automotive industry, with the goal of achieving and using common standards.

The fact that more and more OEMs and suppliers use RM tools to manage their requirements leads to a potentially chaotic situation where these tools may not be able to interface. The most important thing that is missing is an exchange format which is **independent from a special Requirement Management tool and supported by all vendors** of RM tools.
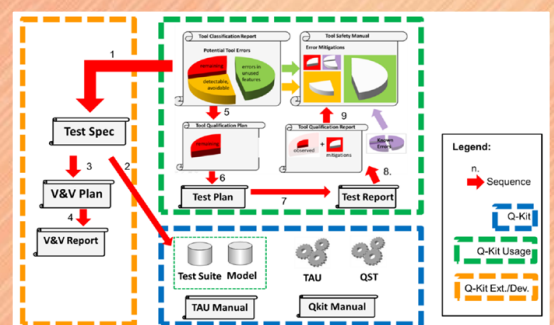

The Requirement Interchange Format (ReqIF) was born for this specific purpose as it defines a format for exchanging requirements information which is independent of the RM tool used. In this way, collaboration between companies is improved as each one uses their own tools, but information can still be exchanged in a common format.

Qualification Kit (RQK)

The Qualification Kit allows users to **qualify REQTIFY tools for projects based on DO-178C, DO-330, IEC 61508, EN 50128 or ISO 26262**.

The kit contains tool qualification plans, tool requirements, and other materials required for qualifying software verification tools. With the kit, **you can streamline certification of systems developed using REQTIFY product.**

DOFware

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