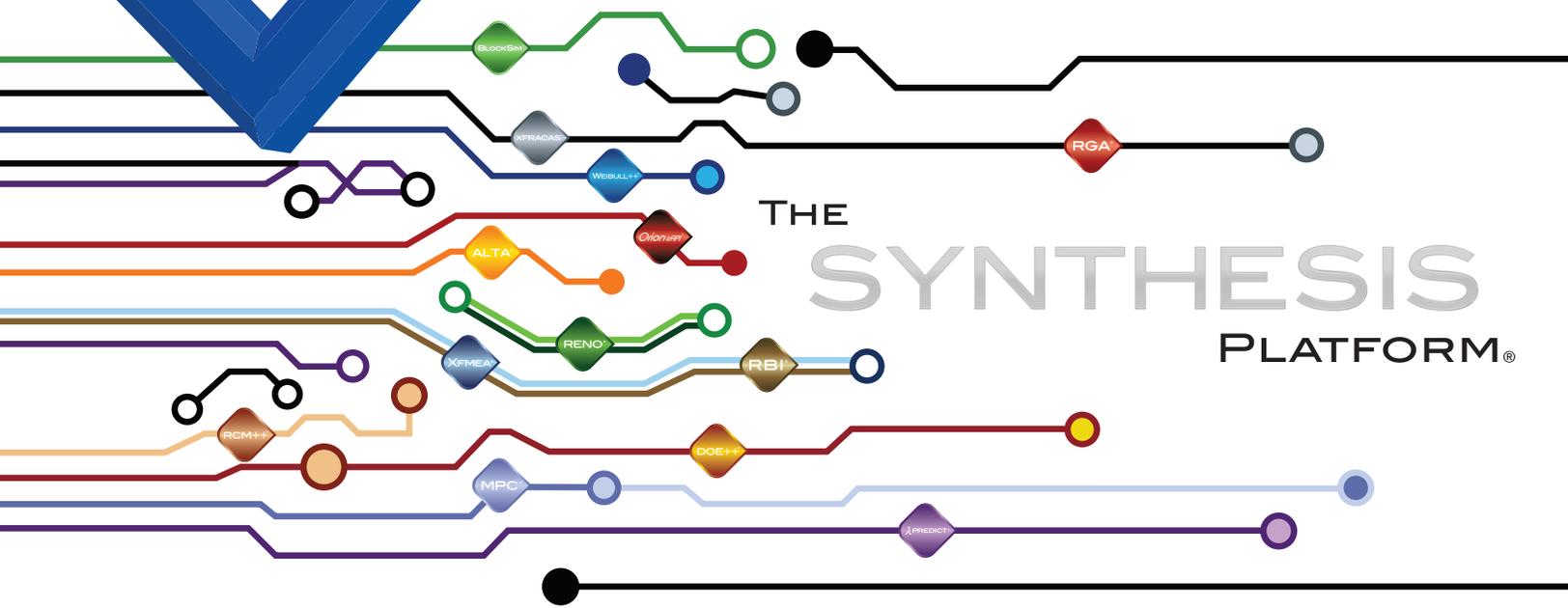
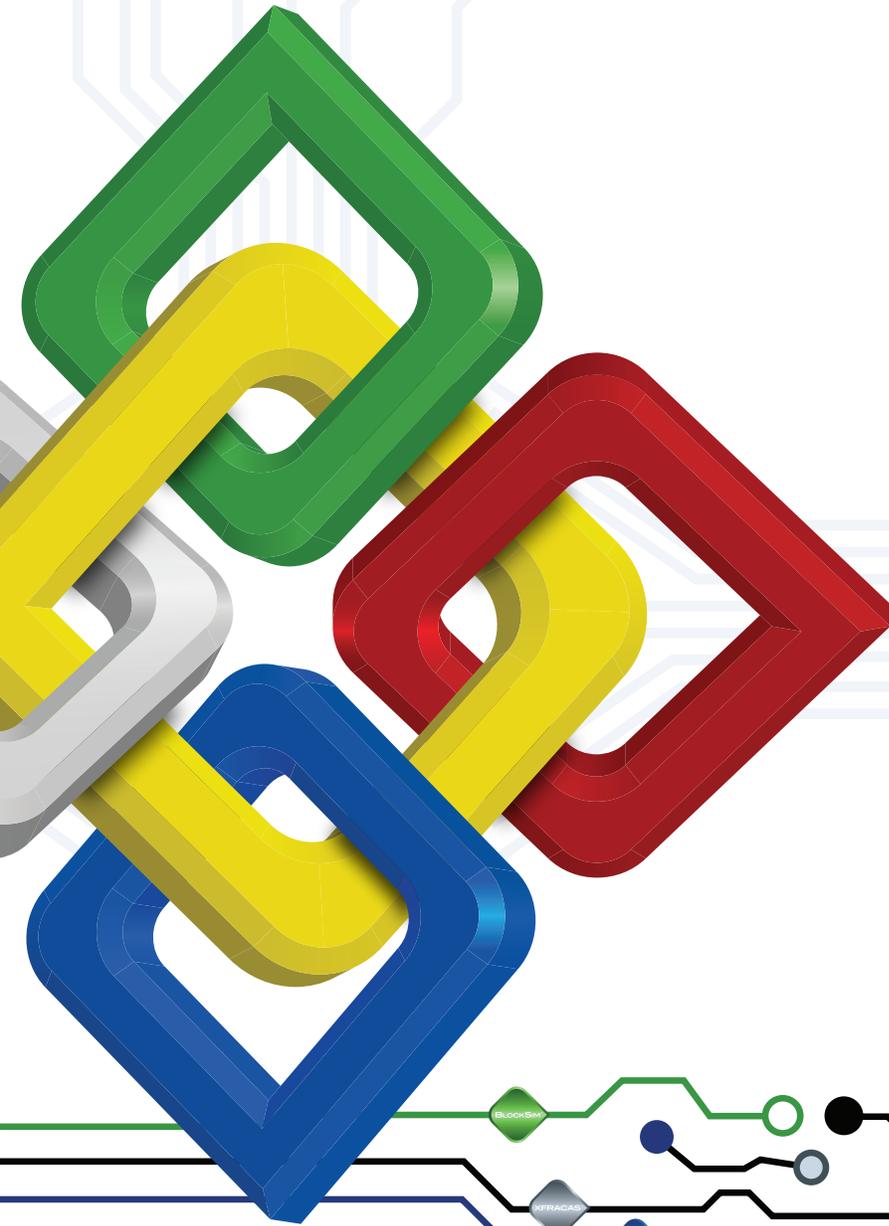


ReliaSoft®



THE
SYNTHESIS
PLATFORM®

THE SYNTHESIS PLATFORM®

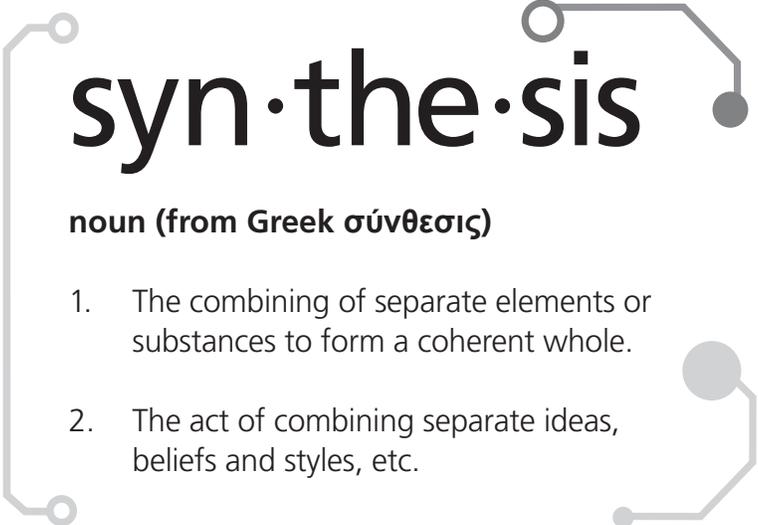


Reliability Analysis Platform,
Knowledge Repository and
Intelligence Center

Synthesis is an integrated reliability platform that can unite any or all of ReliaSoft's best-in-class reliability engineering applications into a **powerful, easy-to-deploy, enterprise-capable, integrated reliability solution.**

This powerful platform is built-in to Weibull++, BlockSim, Xfmea and all other Synthesis-powered desktop applications. It provides **intelligent integration** between reliability program activities and tools, while simultaneously facilitating **effective information sharing and cooperation** between engineering teams of any size.

The end result is the ability to maximize the efficiency and effectiveness of reliability activities, which results in **time savings, agility and reductions in both time-to-market and cost**, while **maximizing the achieved reliability and associated ROI**. That's the power of the Synthesis Platform!



syn·the·sis

noun (from Greek σύνθεσις)

1. The combining of separate elements or substances to form a coherent whole.
2. The act of combining separate ideas, beliefs and styles, etc.

<http://Synthesis.ReliaSoft.com>

INTRODUCING THE SYNTHESIS PLATFORM

The Synthesis Platform is the result of a multi-year R&D effort focused on developing the right processes, analysis tools and IT framework to synthesize discrete reliability activities into a **continuously self-improving reliability program** with significant contributions from each activity.

Designed to address the feedback and needs expressed by thousands of reliability practitioners in virtually every industry, the platform leverages classical reliability engineering methodologies and existing best practices coupled with a **new and intelligent approach to integration**.

Eliminates "Islands" of Information

In today's dynamic and knowledge-driven business world, data and information sharing are essential for innovation and improvement in products, services and processes.

Without an effective infrastructure in place to facilitate collaboration between engineers with different responsibilities and subject matter expertise, too many organizations face the problem of disconnected "islands" of reliability information that limit their ability to meet and exceed reliability and productivity goals.

The Synthesis Platform eliminates these barriers by providing a **structured, flexible and secure back-end database** that promotes information sharing between teams of any size, with related or different subject matter expertise, and coming from the same or different organizational units.



Facilitates Effective Collaboration Between Subject Matter Experts

Data sharing in itself does not guarantee that the information will be used correctly and effectively by everyone involved. When the organization employs different subject matter experts for different reliability activities, how do you ensure that the often complex information and knowledge shared by one expert will be understood and used appropriately by other practitioners who need it?

The solution is the **revolutionary object-based reliability modeling (OBRM)** concept pioneered by ReliaSoft, which hides activity-specific complexity while exposing what is useful for others to leverage. Each application "knows" what information to provide to other activities, as well as how to use the information it receives.

Intelligent Integration Without Sacrificing Analytical Power

Traditionally, software integration has meant that a certain amount of core functionality was sacrificed or at least compromised. That is certainly not the case with the Synthesis Platform.

Individually, all of ReliaSoft's Synthesis applications continue to stand out as the **most powerful, functional and user-friendly reliability software on the market**. When used together, they retain their own unique strengths while leveraging relevant information from the entire suite of products to achieve an integrated solution that truly is **greater than the sum of its parts**.

FLUIDLY SHARES INFORMATION BETWEEN RELIABILITY ACTIVITIES

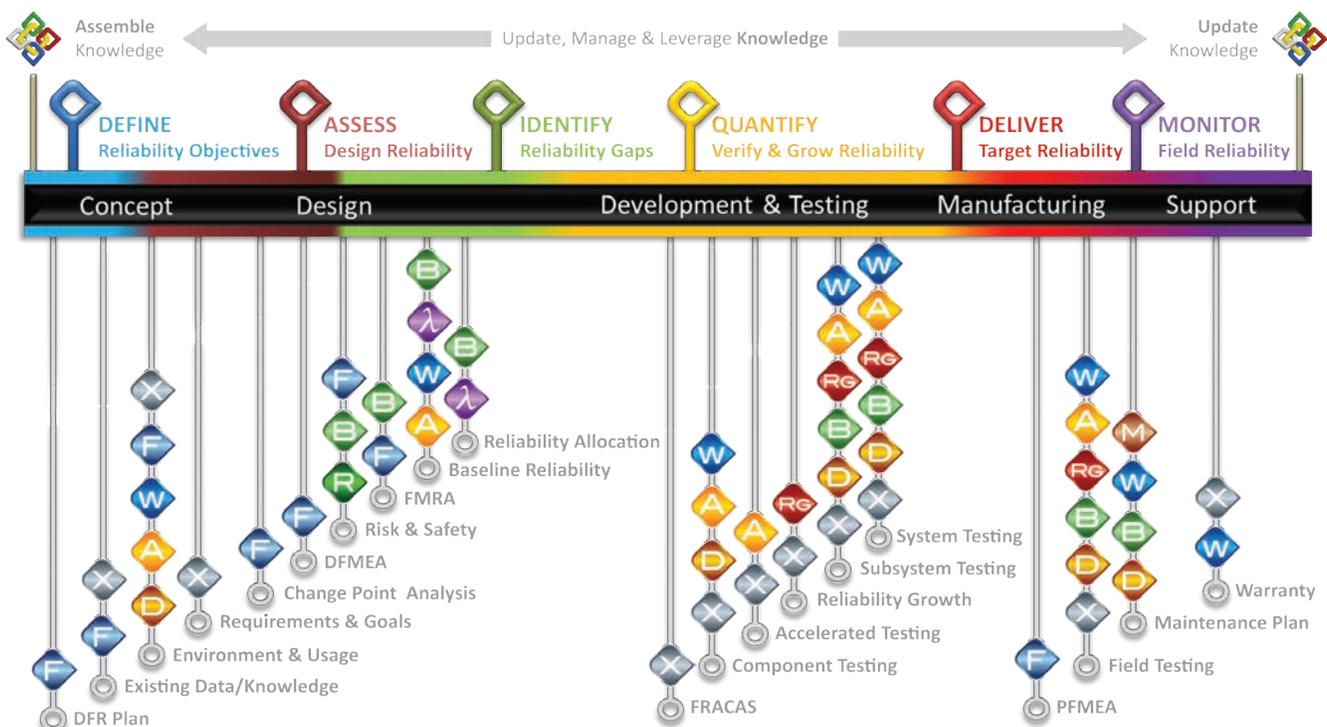
Whether you are a lone reliability engineer in a small organization or an executive with thousands of engineers working together on many different product lines, the Synthesis Platform was designed to meet your needs. The platform and software tools offer both the **depth and breadth of reliability functionality** necessary for a successful reliability program implementation from "cradle to grave."

Engineers with different expertise and responsibilities (and even if they're working in different departments or facilities across the globe) can take advantage of a centralized and structured framework to facilitate the **transfer of reliability knowledge throughout the product life cycle**.

Consider just a few basic examples of the many different ways your organization may choose to use the Synthesis Platform to facilitate, support and enhance **Design for Reliability (DFR)** and **Asset Performance Management (APM)** activities:

- Working in Weibull++ and ALTA, reliability engineers analyze available data to quantify the probability of occurrence for known failure modes. This information is then available for Xfmea where...
- The Design FMEA team links directly to available analysis results in their efforts to understand and reduce the risk in the design. Then the FMEA data is available for BlockSim where...
- Design engineers leverage the knowledge recorded in the FMEA to build RBDs and/or fault trees for critical tasks such as estimating the baseline reliability, identifying critical failure modes, allocating reliability requirements, evaluating risk and planning maintenance strategies...

This type of collaboration continues throughout all other reliability activities and life cycle stages. As the body of knowledge improves in each stage, automated feedback mechanisms ensure that the most **up-to-date information** continues to be available to all activities, providing a **continuous, self-improving, closed knowledge loop**.



AN INTELLIGENT, SCALABLE, EVOLVING PLATFORM FOR RELIABILITY

Automatically Builds a Reliability Knowledge Repository

At the same time that the Synthesis Platform is facilitating information sharing and collaboration for ongoing projects, the system is simultaneously building a **secure, permission-based and searchable** corporate repository of reliability knowledge.

The data, analysis and lessons learned that are captured by the repository can be accessible to engineers throughout the organization. This provides a huge head start on future projects by making it easy to **reuse and build upon** existing information.

This instant access to versatile, organization-wide reliability data provides a strong foundation that will not only **save a tremendous amount of time**, it will also **greatly improve the outcome of future projects**.

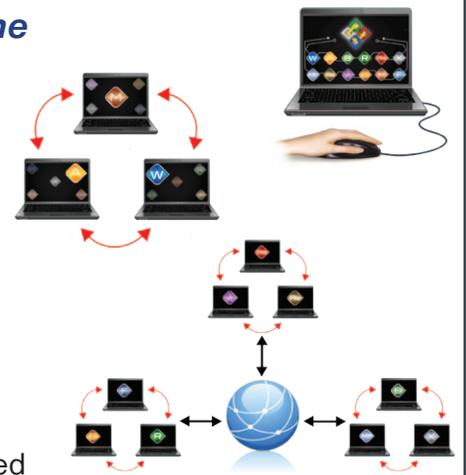
Robust & Scalable Architecture:

Single-User, Multi-User or Enterprise Deployments in One

The Synthesis Platform and desktop applications were designed from the ground up to be "connection aware" and to adapt automatically to single-user, multi-user and enterprise configurations.

The exact same software solution that you might deploy for a single reliability engineer on a single computer can be scaled to a global enterprise with thousands of engineers on a server farm functioning as a corporate repository. This provides both **complete deployment flexibility** and, best of all, **true scalability**.

The full functionality is available with every license type (you do not need to purchase a special "enterprise license"). Both SQL Server® and Oracle® enterprise database platforms are supported; users can also share the platform's built-in standard repositories through their own networks with no special configuration required.



APIs for Data Transfer with External Systems

The Synthesis Platform includes a rich set of Application Programming Interfaces (APIs) to connect Synthesis applications and data with other systems and tools used within your organization. You can use the APIs transfer data to or from a variety of different PLMs, ERPs, CMMS and other external systems.



SYNTHESIS API

Built by Reliability Engineers for Reliability Engineers:

A Revolutionary Reliability Solution That Will Continue to Evolve

The groundbreaking new features and robust enhancements of the Synthesis Platform are just the latest chapter in ReliaSoft's 20+ year history of innovation and support for engineers engaged in reliability activities throughout all stages of the product life cycle.

Our commitment to continuous investment in R&D and our focus on developing practical solutions means that you can expect to see even more result-driven concepts and innovative additions to the Synthesis Platform for years to come.



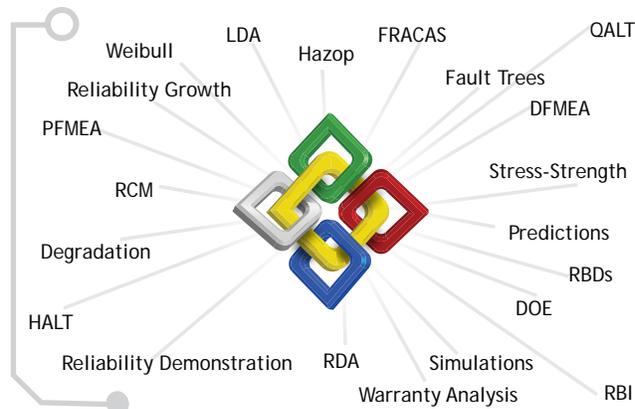
INTRODUCING THE SYNTHESIS APPLICATIONS

The Synthesis Platform is as much about having the right tools as it is about having the right process. Each Synthesis application is **optimized for a specific set of activities**.

In fact, they are the latest versions of the ReliaSoft applications that you have come to rely on over the past 20+ years, enhanced to **revolutionize how your company quantifies and improves reliability**.

Individually, each application is the most powerful software tool available to facilitate a specific set of reliability activities. Together, they become a cradle-to-grave reliability solution, managing every step of the Design for Reliability (DFR) and Asset Performance Management (APM) processes.

All of the following applications are now integrated into the Synthesis Platform.



Best-in-class software, integrated reliability solutions

- W WEIBULL++[®]**
Reliability Life Data Analysis
- A ALTA[®]**
Accelerated Life Testing Analysis
- D DOE++[®]**
Experiment Design and Analysis
- RG RGA[®]**
Reliability Growth Analysis
- B BLOCKSIM[®]**
System Analysis with RBDs or Fault Trees
- R RENO[®]**
Probabilistic Event and Risk Analysis
- λ PREDICT[®]**
Standards Based Reliability Prediction

- F XFMEA[®]**
FMEA and Related Analyses
- M RCM++[®]**
Reliability Centered Maintenance
- Rb RBI[®]**
Risk Based Inspection Analysis
- MP MPC**
MSG-3 Maintenance Program Creation
- X XFRACAS[®]**
Web-based FRACAS
- ENTERPRISE PORTAL**
Web-based Synthesis Portal
- SYNTHESIS API**
Application Programming Interfaces (APIs)

SYNTHESIS APPLICATIONS: WEIBULL++ AND ALTA



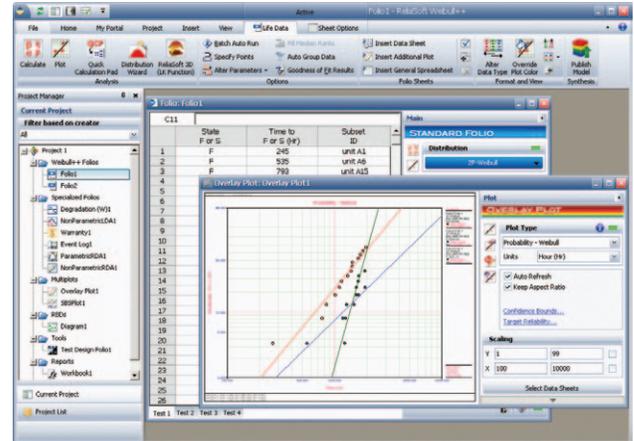
WEIBULL++[®]

The standard for reliability life data analysis™

Weibull++ is the industry standard in life data analysis (Weibull analysis) for thousands of companies worldwide.

The software performs life data analysis utilizing multiple lifetime distributions (including all forms of the Weibull distribution), with a clear and concise interface geared toward reliability engineering.

New and improved capabilities in Version 10 include fractional failure analysis, destructive degradation analysis, the ability to create your own user-defined degradation models and the ability to import data from an external database (via the Synthesis Data Warehouse).



For more information, please visit: <http://Weibull.ReliaSoft.com>



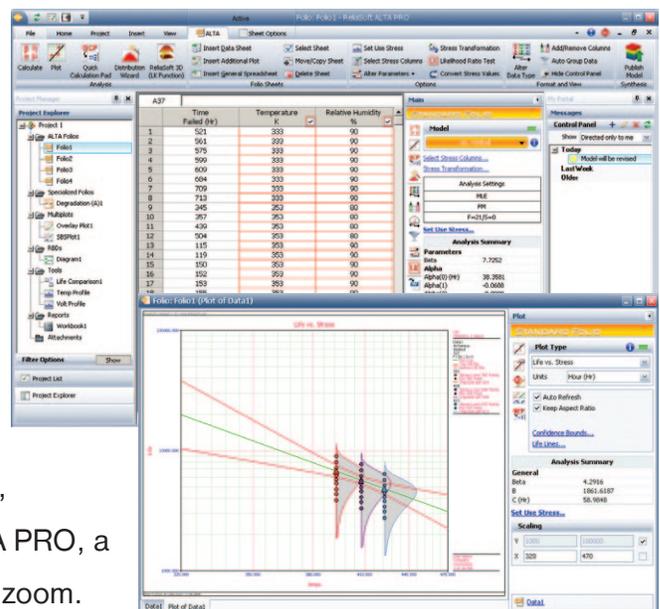
ALTA[®]

Accelerated life tests... quantifiable results™

ALTA provides an intuitive and user-friendly way to utilize tremendously complex and powerful mathematical models for accelerated life testing data analysis.

The software provides the life-stress relationships required to analyze accelerated life test data with up to 8 simultaneous stress types where stress is constant or varies with time.

In addition to major upgrades in the Synthesis Platform, Version 10 introduces a new stress profile plot for ALTA PRO, a completely upgraded 3D plot utility and interactive plot zoom.

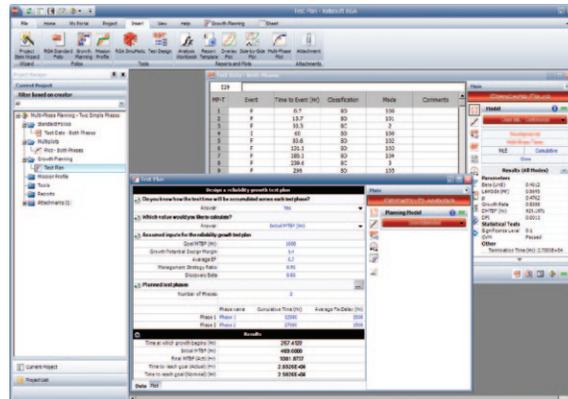


For more information, please visit: <http://ALTA.ReliaSoft.com>

SYNTHESIS APPLICATIONS: RGA AND DOE++



RGA applies reliability growth models for both developmental testing and fielded repairable systems. In development, you can quantify the reliability growth achieved with each successive design prototype and also utilize advanced methods for reliability growth projections, planning and management. For systems operating in the field, you can calculate optimum overhaul times and other results without the detailed data sets that normally would be required for repairable system analysis.

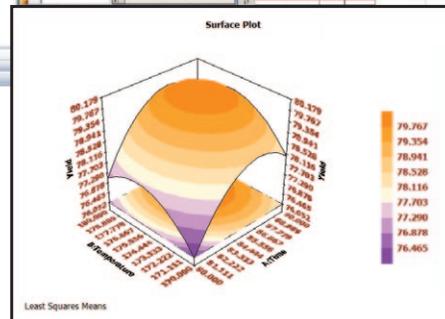
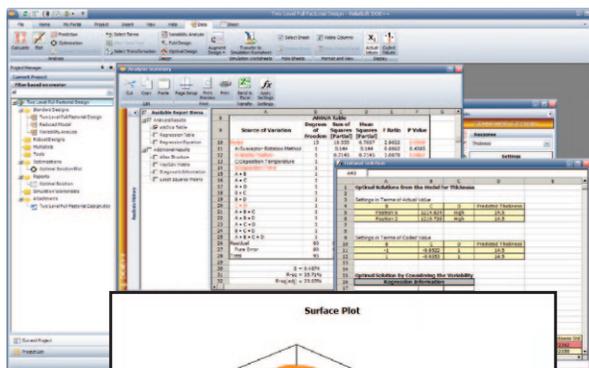


Some of the enhancements in RGA 10 include a new optimum overhaul plot, future projections for the Crow Extended model, color-coded failure types in the system operation plot and a mode fix list for event reports.

For more information, please visit: <http://RGA.ReliaSoft.com>



DOE++ facilitates traditional Design of Experiments (DOE) techniques for studying the factors that may affect a product or process in order to identify significant factors and optimize designs. The software also expands upon standard methods to provide the proper analysis treatment for interval and right censored data — offering a major breakthrough for reliability-related analyses!



In DOE++ 10, we've added a new Mixture Designs folio, alpha-based factor levels in Central Composite Designs, the option to enter repeated measurements for test runs and the ability to choose the shape parameter for Reliability DOE.

For more information, please visit: <http://DOE.ReliaSoft.com>

SYNTHESIS APPLICATIONS: BLOCKSIM AND RENO



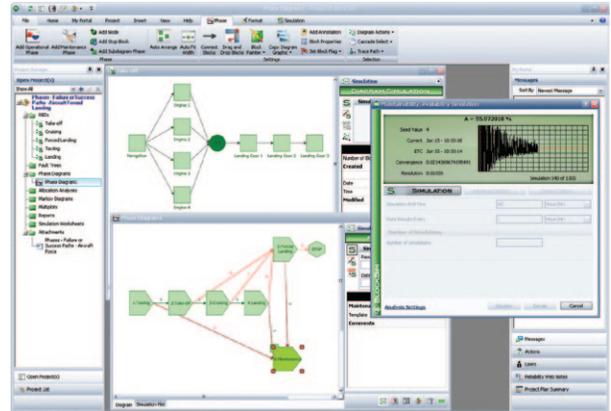
BLOCKSIM®

The ultimate system visualization and analysis tool™

Using a reliability block diagram or fault tree analysis approach, BlockSim supports a wide variety of analyses for repairable and non-repairable systems.

This includes reliability, maintainability, availability, reliability optimization, throughput, resource allocation, life cycle cost estimation and related analyses.

In Version 10, BlockSim offers both discrete and continuous Markov diagrams (if supported by your license), a tool to calculate the optimum inspection interval, new drag and drop features for building diagrams, curved line connectors, universal diagram skins and other enhancements.



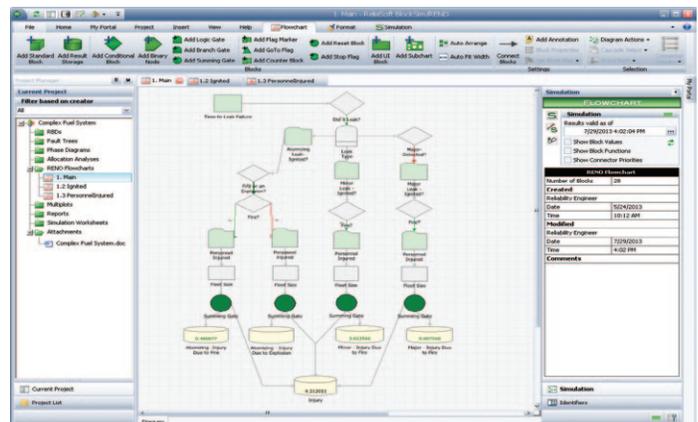
For more information, please visit: <http://BlockSim.ReliaSoft.com>



RENO®

If you can flowchart it, you can simulate it!™

RENO is a powerful and user-friendly platform for building and running complex analyses for any probabilistic or deterministic scenario using an intuitive flowchart modeling approach and simulation. You can create flowchart models for complex reliability analyses, risk and safety analyses, decision making, event trees, maintenance planning and many other applications.



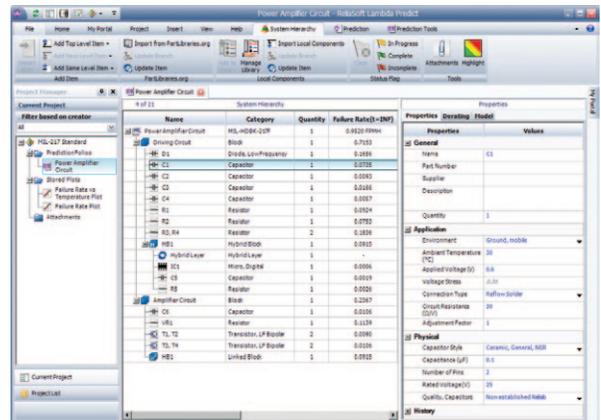
RENO 10 includes a new 3D plot utility for sensitivity analysis, the ability to quickly transfer an array of results to Weibull++, curved line connectors and universal diagram skins.

For more information, please visit: <http://RENO.ReliaSoft.com>

SYNTHESIS APPLICATIONS: LAMBDA PREDICT AND XFMEA

LAMBDA PREDICT[®] Standards based reliability predictions

Lambda Predict facilitates reliability prediction analysis based on major published standards, including MIL-HDBK-217F, Bellcore/Telcordia, FIDES and NSWC Mechanical. The software provides a complete array of calculated results along with graphical charts and customizable reports. It also offers a full set of supporting tools, including easy-to-use component library functionality, reliability allocation and derating.

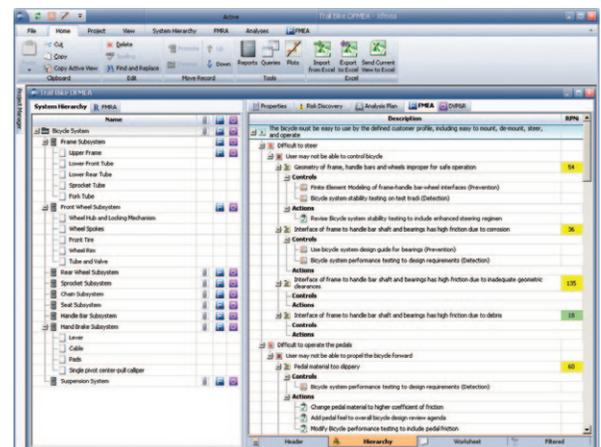


In addition to major upgrades in the Synthesis Platform, Lambda Predict 10 now offers support for NSWC-11, a dedicated folio for MIL-217 parts count analysis, and new plots and phase sets for FIDES analyses.

For more information, please visit: <http://Predict.ReliaSoft.com>

XFMEA[®] Expert support for all types of FMEA and FMECA[™]

Xfmea facilitates data management and reporting for all types of FMEA and FMECA, with built-in utilities for related analyses, such as Process Flow Diagrams, Control Plans, Test Plans (DVP&Rs) and Design Reviews Based on Failure Mode (DRBFMs). The software provides predefined profiles for the major reporting standards and also offers extensive capabilities to customize the interface and reports to meet your organization's specific needs.



In Version 10, Xfmea introduces linked FMEAs, Smart Add (to find relevant text from similar analyses), interactive FMEA block diagrams, automatic test plan generation and many other usability and analysis enhancements.

For more information, please visit: <http://Xfmea.ReliaSoft.com>

SYNTHESIS APPLICATIONS: RCM++ AND RBI



RCM++[®]

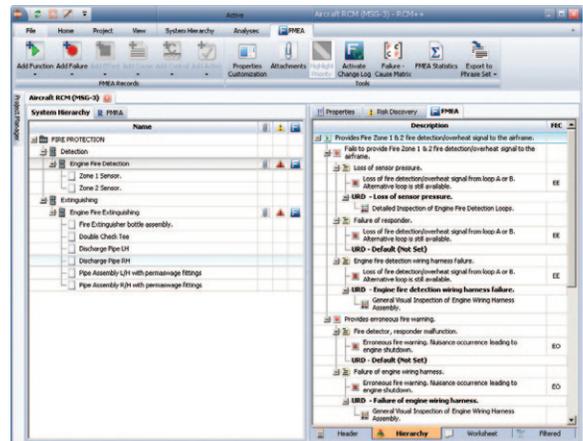
Putting the reliability back into reliability centered maintenance™

RCM++ facilitates the reliability centered maintenance (RCM) analysis approach for creating scheduled maintenance plans, which is an important aspect of an effective asset management program.

The software provides support for the major industry RCM standards and also offers extensive configuration options to fit your organization's particular RCM analysis approach. Full-featured FMEA/FMECA functionality is also included.

In RCM++ 10, we've added many new and improved features such as the ability to allocate target reliability/availability from the FMRA, graphical dashboards for FMEA/FMRA data and the ability to filter the system hierarchy.

For more information, please visit: <http://RCM.Reliasoft.com>



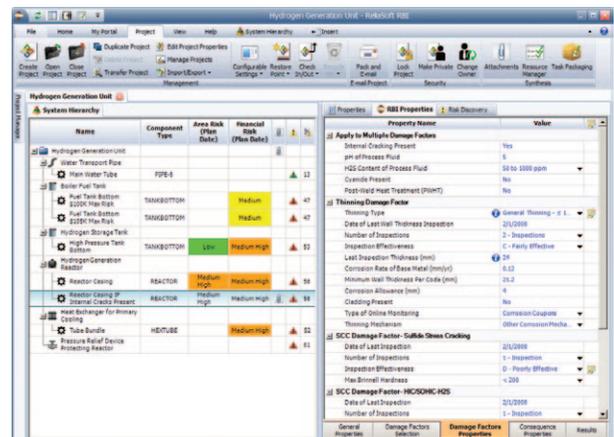
RBI[®]

Risk based inspection analysis for oil & gas, chemical and power plants

The newest addition to Reliasoft's collection of reliability engineering software, RBI facilitates risk based inspection (RBI) analysis for oil & gas, chemical and power plants in adherence to the principles and guidelines presented in the American Petroleum Institute's recommendations in the API RP 580 and RP 581 publications, as well as the American Society of Mechanical Engineers' recommendations in the ASME PCC-3-2007 publication. Full-featured RCM and FMEA/FMECA functionality is also included.

In Version 10, RBI now includes new Area Risk and Financial Risk plots. We've also added the ability to set the measurement unit for many RBI properties and multiple enhancements for the software's FMEA and RCM analysis capabilities.

For more information, please visit: <http://RBI.Reliasoft.com>



SYNTHESIS APPLICATIONS: MPC AND XFRACAS



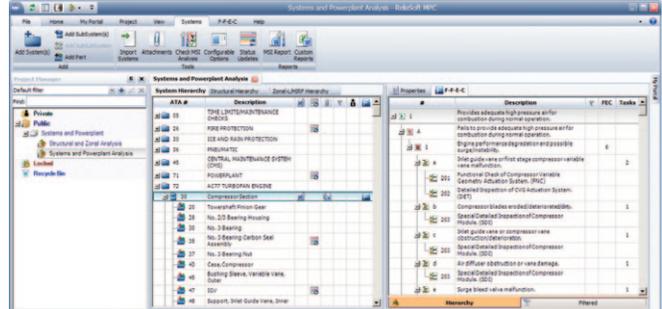
MPC

An MSG-3 compliant maintenance program creator

MPC is an MSG-3 compliant maintenance program creator for the aircraft/aerospace industry.

MPC Standard supports the entire process for Systems and Powerplant Analysis.

MPC Plus includes additional support for Structural Analysis and Zonal-L/HIRF Analysis.



In MPC 10, we've added multiple new reporting features and new analysis options for MPC Plus: fatigue damage analysis, Detectability and Composition ratings for environmental deterioration analysis, and Residual Strength and Damage Growth ratings for accidental damage analysis.

For more information, please visit: <http://MPC.ReliaSoft.com>

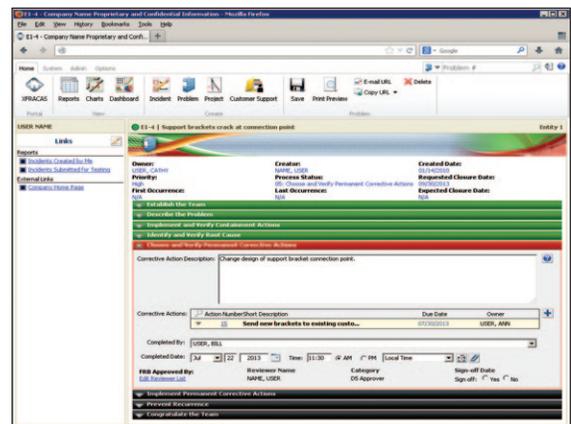


XFRACAS[®]

The only truly web-based, user-configurable, enterprise-wide FRACAS in a box[™]

XFRACAS has been designed for the acquisition, management and analysis of product reliability, quality and safety data from multiple locations, along with team-based problem solving and related activities.

This web-based, enterprise-wide FRACAS system is highly configurable, allowing you to customize the system to meet your organization's particular needs – no custom programming required!



XFRACAS 10 offers user interface enhancements, new administrative capabilities and increased integration with the Synthesis Platform and desktop applications.

For more information, please visit: <http://XFRACAS.ReliaSoft.com>



SYNTHESIS ENTERPRISE PORTAL

Web-based Portal for the Synthesis Platform

The web-based Synthesis Enterprise Portal (SEP) enables your entire organization or team – including managers and colleagues who don't have any of the Synthesis desktop applications installed – to access key analysis and project management details **from any web-enabled device!**



KPI metrics and selected analysis results.

The analysts using Synthesis desktop applications decide which metrics, models, analysis summaries, reports and dashboards will be shared via the SEP website.

Then each user can choose what to monitor from his/her own personalized web portal.



Project plans and assigned actions.

The SEP shows a streamlined view of the project plan (gates and actions) for each analysis project and makes it easy for your team to track and report progress for assigned actions.



System hierarchies and FMEAs.

SEP users throughout your organization can view the FMEAs and published reports created in Xfmea/RCM++/RBI without having the desktop application installed!



Timeline-style messages.

The SEP website provides access to these messages via mobile devices and enables more team members to participate in the discussion.



Integration with XFRACAS (incident tracking system).

For the most comprehensive enterprise reliability solution available, you can deploy the SEP on the same database and web server with ReliaSoft's XFRACAS. Each user can access the tool(s) that fit their particular roles.



Scalable and distributable web-based architecture.

Whether you have 15 users or 15,000 users, the SEP is scalable and easy to distribute with nothing extra to install for each user. Your team can access the portal with their preferred web browsers (such as Internet Explorer, Chrome, Firefox or Safari) from a variety of devices (smart phone, tablet, laptop, etc.).

For more information, please visit: <http://SEP.Reliasoft.com>

FREQUENTLY ASKED QUESTIONS

How can I tell if the Synthesis Platform is right for me?

The best way to understand the power of Synthesis and ReliaSoft's suite of reliability engineering software applications is to download a **free trial** to see how the software can work for you. A free demo for all of the Synthesis desktop applications is available from our website at <http://Synthesis.Reliasoft.com/demo>.



Do I need to buy anything extra to use the Synthesis Platform?

The platform is automatically installed with any Synthesis desktop application. If you have one or more of these applications, there is **nothing extra to buy or install**.

Will Synthesis work on my computer?

All Synthesis applications support a **variety of operating systems and database platforms** to meet everyone's needs. For detailed information about system requirements, see <http://Synthesis.Reliasoft.com/requirements>.

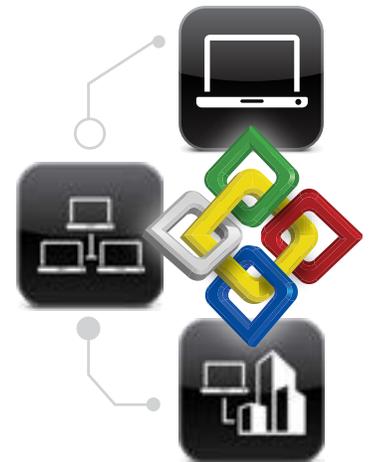
Should I choose the 32-bit or 64-bit version of Synthesis?

All Synthesis desktop applications are available in both 32-bit and 64-bit versions with the capability for multi-processor and multi-threading support. You can choose which version of Synthesis to install if you have a 64-bit version of Windows and any version of Microsoft Office except Office 2010 (32-bit). The decision should be based on the capabilities of your computer and how you plan to use the software. For more information, visit <http://Synthesis.Reliasoft.com/installation>.

Do I have to buy a different version for single-user vs. enterprise deployments?

No. All Synthesis desktop applications were designed to be "connection aware" and adapt automatically to single-user, multi-user and enterprise configurations based on what type of repository the application is currently connected to. There's **only one version of each application** to buy and install, then you can decide how you want to use it.

You can even **enjoy the best of both worlds** – take advantage of the simplicity of a single-user application when you're working independently on a particular analysis, but share data and analysis results with colleagues when you connect with a multi-user or enterprise repository... all using the same software! For details, please visit <http://Synthesis.Reliasoft.com/configuration>.



Do I need to purchase a database server?

For Synthesis desktop applications, a database server is not required unless you choose to use the platform in an enterprise mode. An enterprise data repository requires implementation of Microsoft SQL Server® or Oracle® (and for smaller groups or power users, you can also use the free "Express" editions of those database platforms). A standard repository or Synthesis file requires no special IT infrastructure or support.

FREQUENTLY ASKED QUESTIONS (CONTINUED)

What support options are available to me?

Having the best and most advanced solution on the market is only part of the package; our unparalleled after-sale support completes it. We provide good old-fashioned "pick up the phone and talk to a real engineer at ReliaSoft" technical support. No seemingly endless phone menus and incessant elevator music on hold.

For users with an active maintenance agreement, our robust network of regional offices is waiting to answer your questions personally via phone, e-mail or live chat. For details, visit <http://Support.Reliasoft.com>.



Is Synthesis available in languages other than English?

The Synthesis Platform and applications **speak reliability in multiple languages**. English, French, German, Portuguese, Spanish and Simplified Chinese interfaces are available for Synthesis. For the most up-to-date details on supported languages, please visit <http://www.Reliasoft.com/languages>.

Does ReliaSoft offer training courses to continue my reliability education?

ReliaSoft offers a **wide spectrum of courses all across the world**. Our acclaimed reliability training courses provide instruction in reliability engineering principles and theory as well as the ReliaSoft software designed to put that theory into practice. Training seminars are available in both public and on-site venues. To review full course outlines, details on how our courses can benefit you and the words of **hundreds of satisfied participants**, visit <http://Seminars.Reliasoft.com>.

I'll be using multiple applications. Is bundled pricing available?

Our multi-product suites are competitively priced to offer **significant savings** over purchasing the same products individually. For complete details, visit <http://www.Reliasoft.com/order/suites>.

- The comprehensive **Synthesis Master Suite** includes Weibull++, ALTA PRO, RGA, DOE++, BlockSim (with Markov), RENO, Lambda Predict (all modules), Xfmea and RCM++.
- For users focused on product design and development, the **DFR Essentials Suite** contains Weibull++, ALTA Standard, Xfmea and BlockSim. The **DFR Premium Suite** adds RGA and DOE++.
- For users focused on equipment operation and maintenance, the **RAM Essentials Suite** contains Weibull++, BlockSim and RCM++. The **RAM Premium Suite** adds RGA and RENO.

How can I order, and when will the software arrive?

For desktop applications, both single-user and multi-user (floating) licenses are available. Please contact ReliaSoft to obtain a quote that fits your specific needs.

Depending on the region, we accept payment via credit card, company purchase order, check/money order or wire transfer. You can download the software from our website as soon as your order is processed. For details, please visit <http://www.Reliasoft.com/order>.



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Chennai, India**

ReliaSoft India Private Limited

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E-mail: Contact.India@ReliaSoft.com

For a complete directory, including independent sales/support partners, please visit:

<http://Directory.Reliasoft.com>.

www.Reliasoft.com

