

ReliaSoft's RAM Essential Suite consists of the Weibull++8,

Blocksim & RCM++ software

Specifications of Life Data Analysis module – Weibull Software

1. It shall provide a quick, easy and accurate way for obtaining results for the most frequently asked reliability questions.
2. It shall store analysis as a centralized database that supports simultaneous access by multiple users and shares relevant reliability information between ReliaSoft's Synthesis-enabled software tools.
3. It shall allow the capabilities of ReliaSoft's Weibull++ and ALTA software tools to be integrated into a single user interface with the ability to save both types of analyses together in the same project. (Purchase of separate product licenses is still required.)
4. It shall seamlessly use ReliaSoft's Weibull++ and/or [ALTA](#) analyses to set the properties for a reliability block diagram or fault tree in [BlockSim](#) or a failure modes and reliability analysis (FMRA) in [Xfmea/RCM++](#), and the software can automatically update the diagram if the underlying data analysis changes.
5. It shall support a new application interface that has been completely updated with an attractive and user-friendly Office 2010 "look and feel".
6. It shall support a colour coding feature which aids to assist with data entry and management. There will be an immediate colour change if the entered data is in an incorrect format. It also supports the option to colour-code data points based on their data type or subset ID.
7. It shall support for all life data types and multiple lifetime distributions and it has a new and enhanced test design tool interface more familiar to real-world practice and stores the analysis in a folio for future reference.
8. It has an added support for a fourth test design method: Non-Parametric Bayesian.
9. It shall support **Expected Failure Times Plot** which helps to anticipate what will occur during a reliability test and also provide an early warning if the test is not proceeding as expected.
10. It shall support **Difference Detection Matrix** which helps to determine how much test time may be required before the captured data will make it possible to detect a difference in the reliability of two competing designs.

11. It shall support a redesigned and an enhanced Life Comparison and Stress-Strength tools.
12. It shall facilitate a new integrated tool, designed to support robust engineering methods by allowing you to solve for design parameters based on target reliability.
13. It shall support an automatic calculation of the LDA model directly within the same folio and gives you immediate access to the calculated results and plots.
14. It shall support an updated and redesigned Quick Calculation Pad (QCP) which provides a "Calculation Log" that allows recording of the results from a series of different calculations and then copy/paste the information as needed.
15. It shall support all Synthesis-enabled applications to define conversion factors for entering time values in different units.
16. It shall support an Enhanced Quick Parameter Estimator with User-Friendly Wizard Interface which can define a model without being able to calculate the parameters of a data set. The new wizard interface bypasses the statistical terminology and guides through a series of questions that will "translate" what is known from practical experience into the information required to estimate the distribution and parameters.
17. It shall support a new Target Reliability Estimator tool Based on Costs vs. Benefits which generates multiple plots designed to help and select target reliability that will minimize cost and maximize profit/return on investment.
18. It shall perform warranty and degradation analysis.
19. It shall provide a new Interval Width Estimator tool for Warranty Folio Usage Format which supports the analysis of warranty returns data in terms of usage rather than time in service. This tool allows you to describe the typical usage in terms of either an average rate or a statistical distribution and also helps to estimate appropriate usage rate intervals.
20. It shall support the Design of Reliability Tests utility to determine the appropriate sample size, test duration or other variables for reliability demonstration tests.
21. It shall support two wizards designed for quick comparisons of data sets.
22. It shall support the use of Parametric and Non-Parametric techniques for Recurrence Data Analysis.
23. It shall perform Risk Analysis and Probabilistic Design using Monte Carlo simulation and user-defined functions.
24. SimuMatic performs a large of number of reliability analyses on simulated data sets.

25. It shall support a built-in spread sheets (similar to Microsoft Excel®) which can be used for custom analysis and reporting and it has a “Word Report Template”, a custom reporting utility that has functionality similar to Microsoft Word, which allows
to insert tables and plots that are built automatically based on your specifications and the currently selected data source.
26. It shall provide a specialized folio designed specifically to capture data in an event log format.
27. It shall make it easy to configure the interface and analysis settings to meet your specific preferences and needs.
28. It shall support Warranty Analysis module to use sales and returns data for life data analysis and warranty forecasts.
29. It shall also support the ability to take advantage of an active Internet connection to obtain the most up-to-date announcements, documentation and examples.

Specification of System Reliability, Maintainability

and Availability analysis–BlocksimSoftware

1. It shall provide a comprehensive platform for system reliability, availability, maintainability and related analyses.
2. It shall support an extensive array of reliability block diagram (RBD) configurations and fault tree analysis (FTA) gates and events.
3. It shall provide intuitive and flexible work environment for system modelling and analysis.
4. It shall support more than 10 distributions.
5. It shall support integration into the Synthesis Platform, which allows multiple users throughout the organization to share analysis information between ReliaSoft's Synthesis-enabled software tools.
6. It shall provide support for analysis to be stored in a centralized database that supports simultaneous access by multiple users and shares relevant reliability information between ReliaSoft's Synthesis-enabled software tools.
7. It shall seamlessly integrate Weibull++ and ALTA analyses to set the properties for blocks in a BlockSim RBD or fault tree, then automatically update the diagram if the underlying data analysis changes.
8. It shall work with system configuration and failure mode data from Xfmea or RCM++ analyses as RBDs or fault trees in BlockSim (using the new "Failure Modes and Reliability Analysis" – FMRA).
9. It shall support multi-thread program to take full advantage of the processing power on the computer resulting in simulations running 10 to 50 times faster.
10. It shall support the Batch Mode feature that allows you to schedule a series of simulations in advance.
11. It shall support the Universal Reliability Definition (URD) capability which provides the flexibility to manage and share/reuse the component reliability and maintenance characteristics required for system analyses across other analyses.
12. It provides modeling flexibility by supporting mirrored blocks across different diagrams thereby allowing to use the same component in more than one location within the diagram, which may be necessary to simulate bi-directional paths.

13. It shall also support advanced capabilities to model complex configurations, load sharing, standby redundancy, phases, duty cycles, and sub diagrams
14. It shall support a new utility for calculating the Optimum Reliability Allocation to meet a specified goal, or the optimum interval for preventive maintenance.
15. It shall support the State Change Triggers utility that activate or deactivate a block under certain conditions during the simulation.
16. It shall support Reliability Phase Diagrams that enable users to model systems that go through different phases during the course of their operation. It shall also support success/failure paths, for situations where a system proceeds to one operational phase upon success and a different operational phase upon failure.
17. It shall also the ability to publish an analyzed diagram as a "model" that can be used in other analyses.
18. It shall generate results for different reliability metrics such as Reliability, Probability of Failure, Conditional Reliability, Conditional Probability of Failure, Reliable Life, BX% Life, Mean Life, Failure Rate/Plots in analytical diagrams.
19. It shall also generate results for simulation metrics such as Point Availability, Point Unavailability, Point Reliability, Point Probability of Failure, Mean Availability, Mean Unavailability, Time for Availability, Time for Reliability, Mean Time to First Failure.
20. It shall utilize simulation for throughput analysis and also providing support for variable throughput.
21. It shall facilitate conversion of a Fault Tree diagram to a Reliability Block Diagram.
22. It shall support a complete array of plots and charts to present your analysis graphically.
23. It shall support a powerful tool for custom analysis and also supports template based reporting tools.
24. It shall use FRED reports to identify assemblies or components that require improvement.
25. It shall calculate the optimum replacement time for a component based on reliability and cost.
26. It shall support the attachment of independent document files to accompany the analysis.
27. It shall also support the ability to take advantage of an active Internet connection to obtain the most up-to-date announcements, documentation and examples.

Specifications for “RCM++” Software

1. It provides analysis, data management and reporting for Reliability Centered maintenance (RCM) analysis, integrated with full-featured FMEA/FMECA capabilities.
2. It provides flexible & configurable support to the common Reliability Centered Maintenance (RCM) activities, including Equipment Selection, Failure Effect Categorization and Maintenance Task Selection.
3. It provides flexible System Hierarchy panel allows you to manage large multilevel system configurations with an unlimited number of levels and an unlimited number of items within each level.
4. It provides flexible capabilities to define the equipment that will be analyzed, including support for large multi-level system configurations.
5. It supports selection Questions method provides a series of yes/no questions, where "Yes" indicates that the equipment should be considered for RCM analysis.
6. It supports Criticality Factors method provides a set of factors contributing to equipment criticality that can be rated on a pre-defined or user-defined scale.
7. It uses the weibull, exponential, normal, lognormal or mixed Weibull distributions to describe the equipment's failure behavior and then use the same powerful calculation and simulation engines that are available in ReliaSoft'sBlockSim system analysis software to compare the operational costs of various maintenance strategies.
8. It has the ability to customize the Maintenance Task Selection logic diagrams to meet specific needs.
9. It supports the Maintenance Task selection logic diagrams in the major industry standards, including: MSG-3, SAE JA1012, RAC RCM, NAVAIR and more.
10. It provides a complete set of reports for your Reliability Centered Maintenance (RCM) analyses. Reports can be generated in Microsoft Word and/or Excel, which provides maximum flexibility for customization and the ability to create HTML and PDF versions of the reports, as desired.
11. It provides many features designed to allow you to configure the software to meet your particular needs, to save time on data entry and to provide integration with other software.

12. It provides automatic RPN calculation for both initial and revised RPNs as well as automatic "roll-up" capability to calculate RPNs for other analysis levels (such as item or Failure Mode) based on the RPNs for the potential causes of failure.