

Quick Tour



ReliaSoft

BlockSim 2020 Quick Tour

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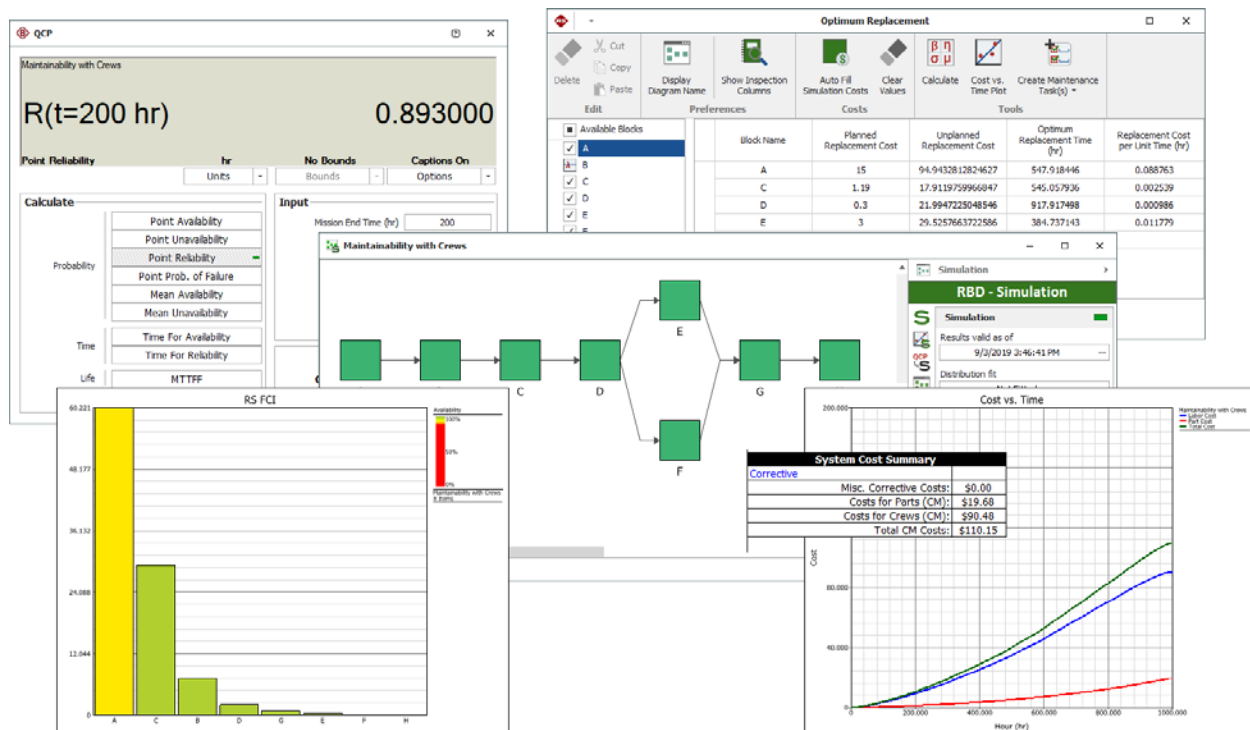
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Quick Tour of BlockSim

BlockSim supports a wide variety of system reliability, availability and related analyses using **reliability block diagrams (RBDs)**, **fault trees (FTA)** and/or **Markov analysis**. It's also packed with tools for related analyses, such as reliability allocation, optimum replacement and inspection, reliability importance measures and throughput analysis. In addition, BlockSim's **event analysis flowcharts** use Monte Carlo simulation to model and analyze even the most complex probabilistic or deterministic scenarios.

You can use this application to answer a wide variety of questions, such as:

- What is the expected reliability of the system? What are the most critical components? What component reliabilities are required to meet the system reliability goal?
- What is the expected availability (uptime) or throughput? Where are the critical components or bottlenecks? What changes are needed to meet the operational goals?
- What is the optimum maintenance strategy? When is the best time for scheduled maintenance? How many spares should we keep on hand? Is crew capacity sufficient?
- How much will it cost to operate the system? How will a change in the design or operating conditions affect costs? Which components are the most costly?
- What is the risk of catastrophic failure? Which components or failure modes pose the greatest risk? How will a change in the design or operating conditions affect safety?
- How does the system perform across different operational phases?
- What is the effect of variability on performance? How will the outcome be affected by changes in specific inputs? What are the probabilities of different possible outcomes?



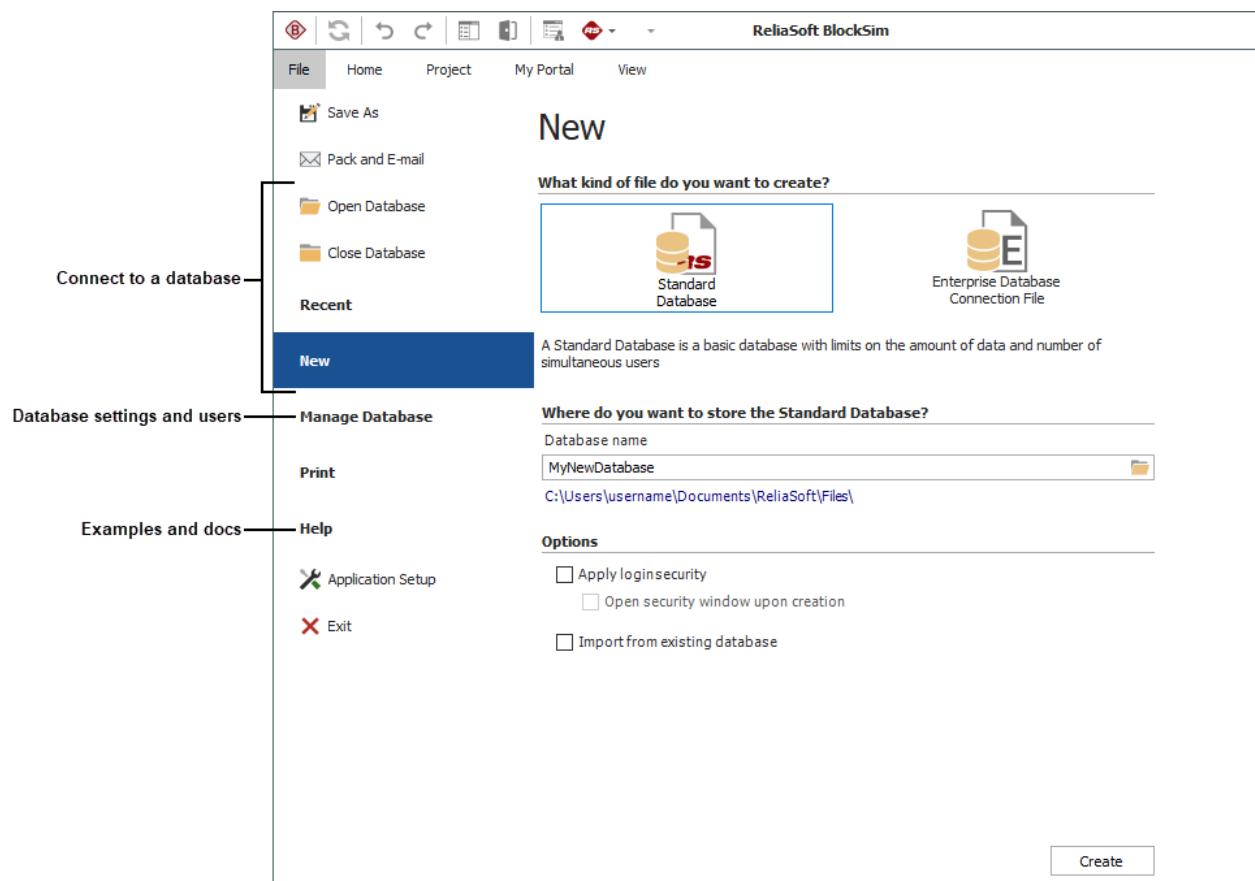
Using Databases and Projects

File Menu

Use commands on the **File** menu (**New**, **Recent** or **Open Database**) to create or open a database.

Each database supports simultaneous access by multiple users. If you have admin permissions, use **File > Manage Database** to control user access and manage configurable settings that apply throughout the database.

Use **File > Help** to access online help and shipped examples.

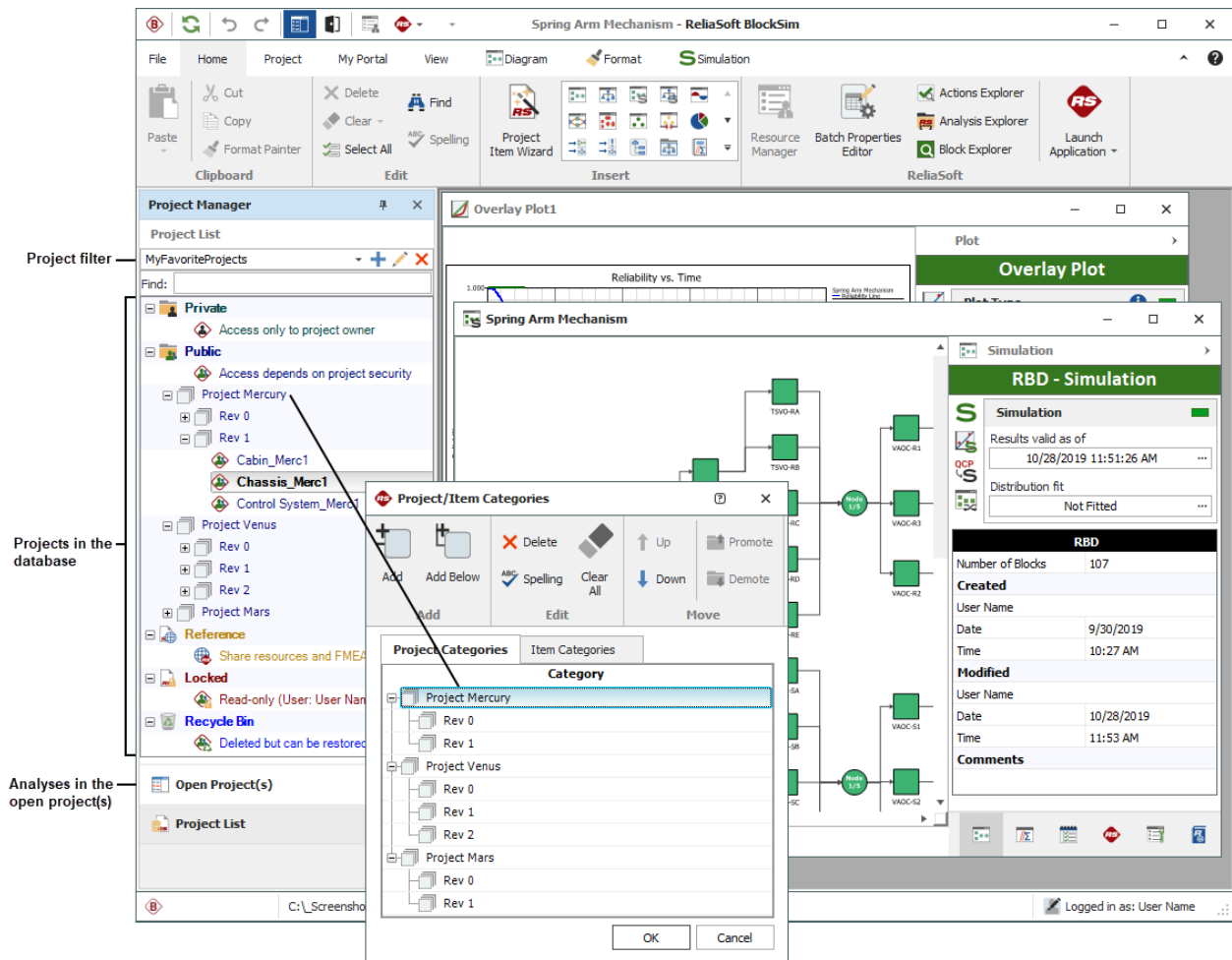


Project List

Each database can contain multiple projects. Use the **project list** to create or open a project.

If you have a lot of projects:

- Use the **project filter** to limit what's displayed.
- Use the **project category** to group projects within the list.



Current Project Explorer

Use the **current project explorer** to create or open analyses and reports.

You can open the same project in any ReliaSoft desktop application. Analyses and reports are visible only in the application(s) that can edit them:

- Life data folios are only visible in Weibull++
- Fault trees are only visible in BlockSim
- FMEAs are only visible in XFMEA, RCM++ or RBI
- Etc.

Common features such as **project plans**, **resources** and **project attachments** are visible in all ReliaSoft desktop applications.

Using Fault Trees

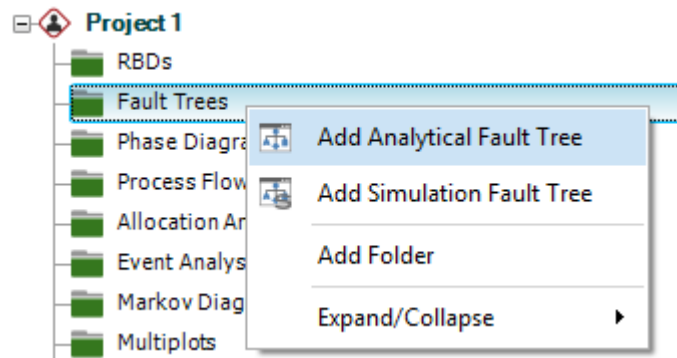
BlockSim's fault trees can be configured as analytical diagrams (which use the exact algebraic equation for the system model but impose limitations on what can be modeled and what results can be obtained) or simulation diagrams (which provide more modeling options and results but must be analyzed with discrete event simulation).

Fault trees and reliability block diagrams (RBDs) can be used together in the same analysis (e.g., a subdiagram block in a fault tree can point to an RBD and vice versa).

The basic steps for using an analytical fault tree are:

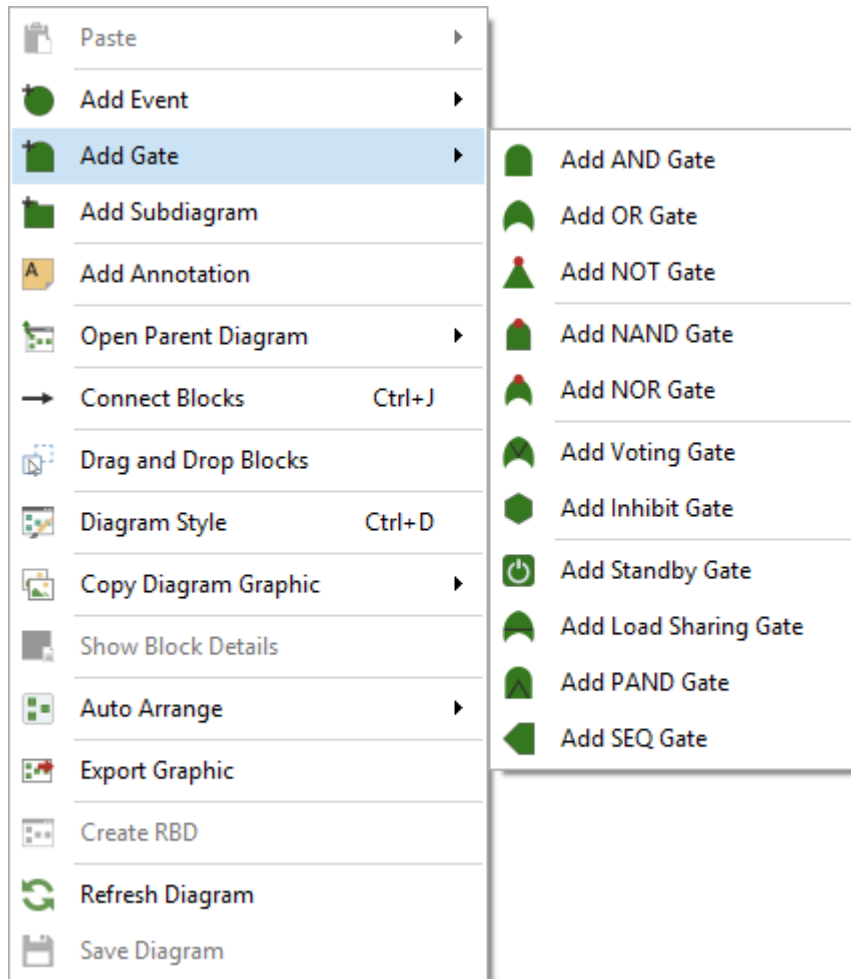
1. [Add fault tree diagram](#)

Right-click the Fault Trees folder in the current project explorer and choose **Add Analytical Fault Tree**.



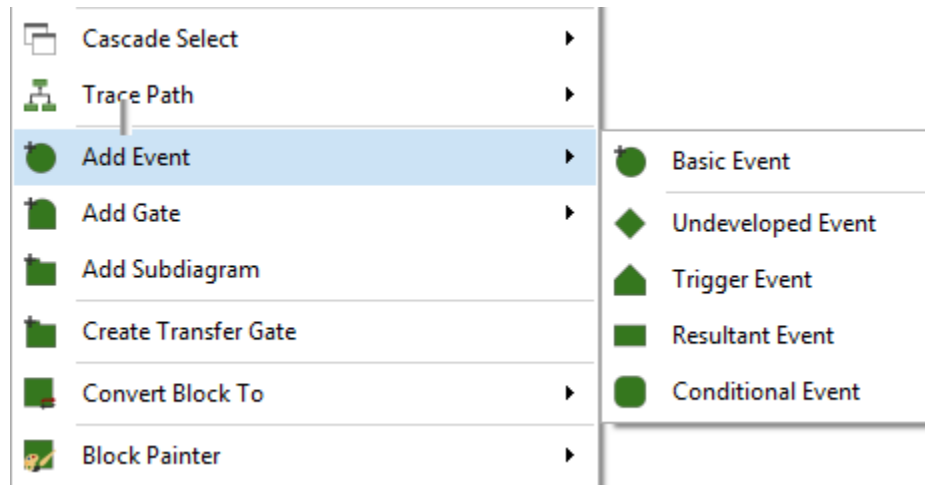
2. Add gates

Right-click inside the diagram and choose the type of gate to add.



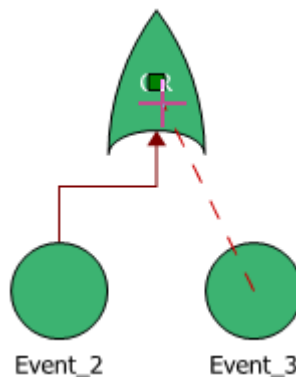
3. Add events

Right-click a gate and choose **Fault Tree > Add Event > [Type of Event]**. When a gate is selected, the event will be added below the gate, already connected.



4. Connect blocks (if applicable)

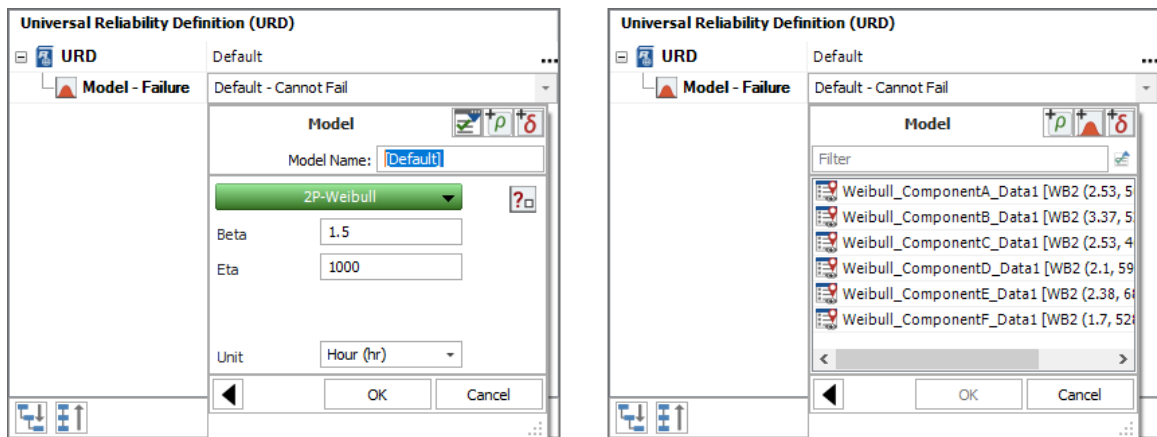
If you need to create a new connection, hold down the **ALT** key, click the source block and drag a line to the destination block.



5. Set block properties

To edit a block's properties, right-click it and choose **Block Properties**. For gate blocks, you can change the name and identifiers. For event blocks, specify any operational and cost properties and use *universal reliability definitions* (URDs) to specify the reliability properties.

- To select an existing URD, click inside the **URD** field.
- To create a new URD, click inside the **Model - Reliability** field and follow the wizard. You can create a new model (left) or select an existing model (right). Existing models may have been manually created, or may have been published from other analyses in BlockSim, Weibull++ or Lambda Predict.



6. Analyze the diagram

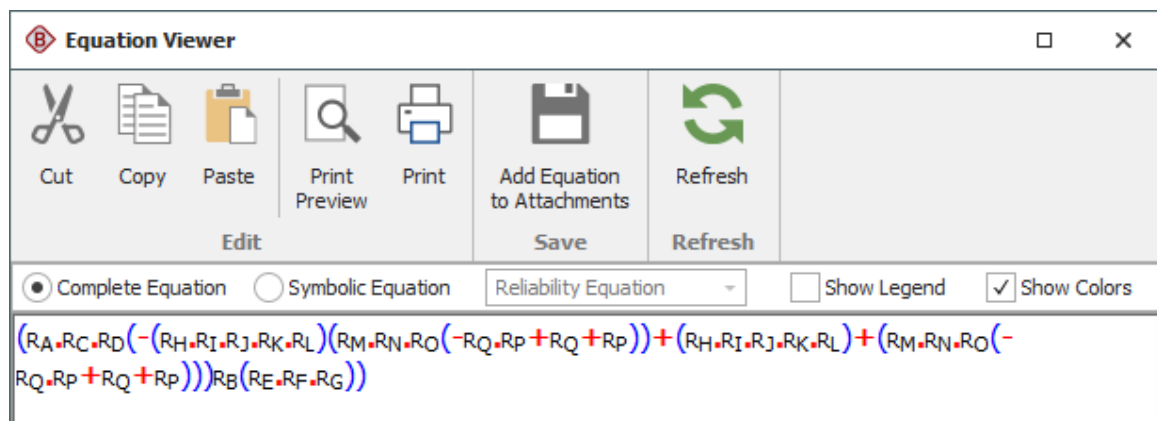
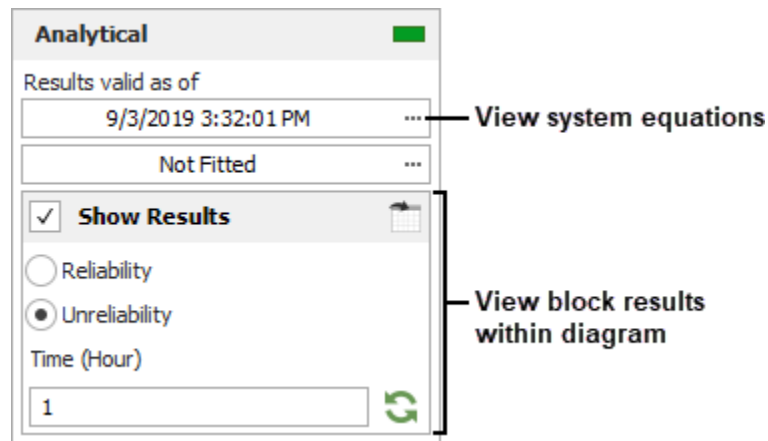
Click the **Analyze** icon on the control panel.



To view the calculated reliability or unreliability at a specific time for each block, select **Show Results** on the control panel and specify the time.

Quick Tour of BlockSim

To view the algebraic equations for the system reliability, *pdf* and failure rate, click the **Results valid as of** field on the control panel.



7. Calculate metrics

Click the **QCP** icon on the control panel to open the Quick Calculation Pad.



QCP

FT

R(t=100 hr) **0.790717**

Reliability hr No Bounds Captions On

Units Bounds Options

Calculate

Probability

- Reliability
- Prob. of Failure
- Cond. Reliability
- Cond. Prob. of Failure

Life

- Reliable Life
- BX% Life
- Mean Life

Rate

- Failure Rate

Input

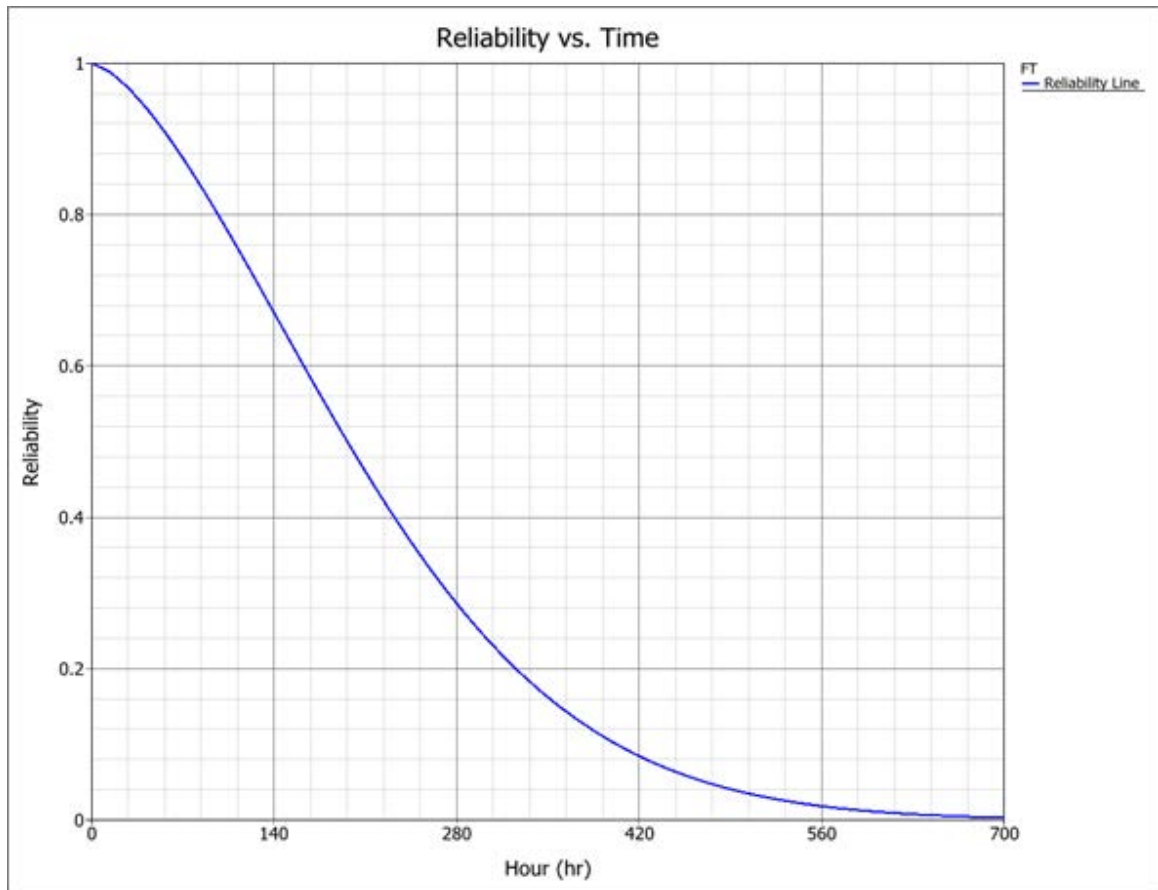
Mission End Time (hr) 100

Calculate Report Close

8. [View plots](#)

Click the **Plot** icon on the control panel to open the plot sheet.





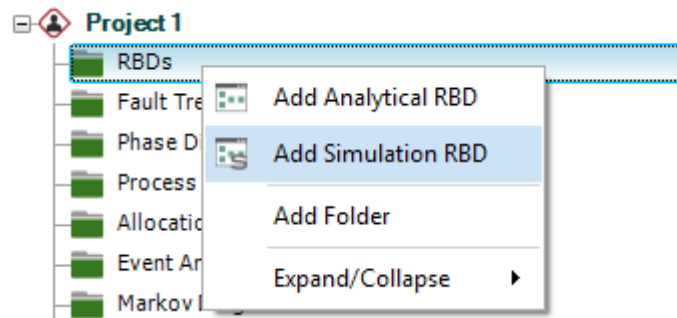
Using Simulation RBDs

A reliability block diagram (RBD) is a graphical representation of how the components of a system are reliability-wise connected. BlockSim's RBDs can be configured as analytical diagrams (which use the exact algebraic equation for the system model but impose limitations on what can be modeled and what results can be obtained) or simulation diagrams (which provide more modeling options and results but must be analyzed with discrete event simulation).

The basic steps for using a simulation RBD are:

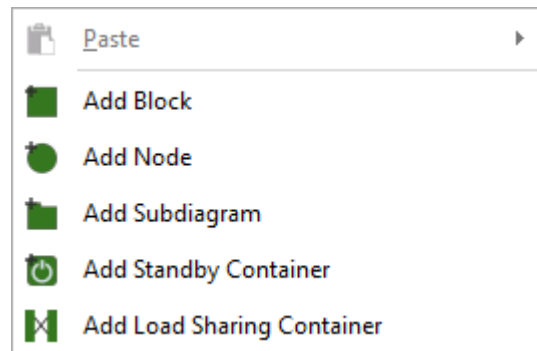
1. [Add diagram](#)

Right-click the RBDs folder in the current project explorer and choose **Add Simulation RBD**.



2. [Add blocks](#)

Right-click inside the diagram and choose the type of block to add.



3. [Connect blocks](#)

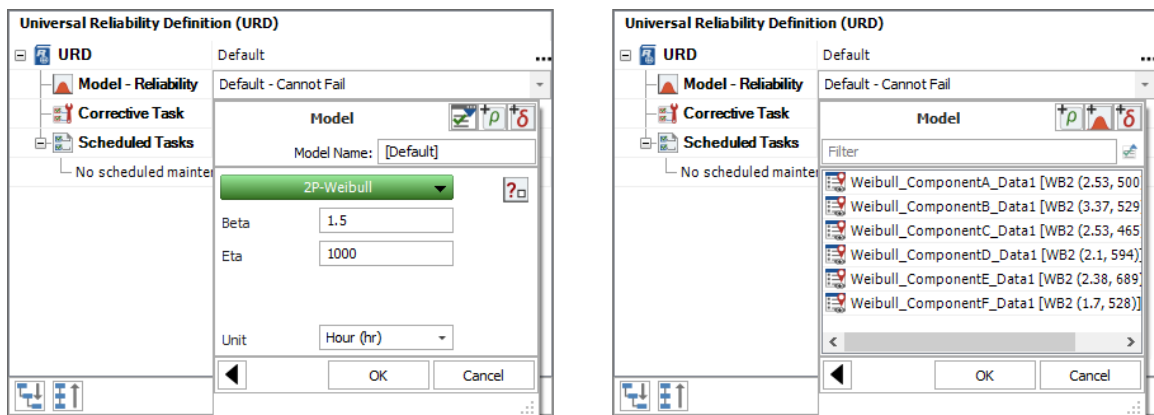
Hold down the **ALT** key, click the source block and drag a line to the destination block.



4. Set block properties

To edit a block's properties, right-click it and choose **Block Properties**. Use a *universal reliability definition* (URD) to specify the reliability properties.

- To select an existing URD, click inside the **URD** field.
- To create a new URD, click inside the **Model - Reliability** field and follow the wizard. You can create a new model (left) or select an existing model (right). Existing models may have been manually created, or may have been published from other analyses in BlockSim, Weibull++ or Lambda Predict.



5. Simulate the diagram

Click the **Simulate** icon on the control panel.

S

Specify the simulation settings and click **Simulate**.

Maintainability/Availability Simulation

A = 92.812705%

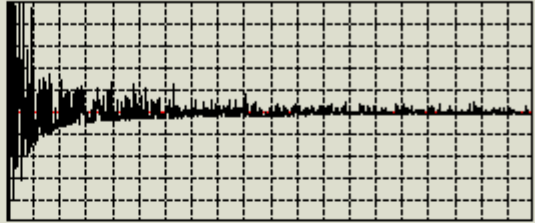
Seed Value 1

Current Sep 03 - 03:46:41

ETC Sep 03 - 03:46:43

Convergence 0.00775162084644776

Resolution 0.01000



Simulation 1000 of 1000

Comparative Options Advanced Options Display Options

Simulation End Time 1000 Hour (hr)

Point Results Every 10 Hour (hr)

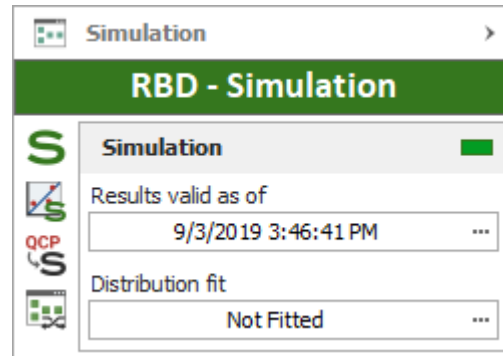
Number of Simulations

Number of Simulations 1000

[Analysis Settings](#) Simulate Details Close

6. View the simulation results

From within the Maintainability/Availability Simulation window, click **Details**. If you have closed the window, click the **Results valid as of** field on the control panel.



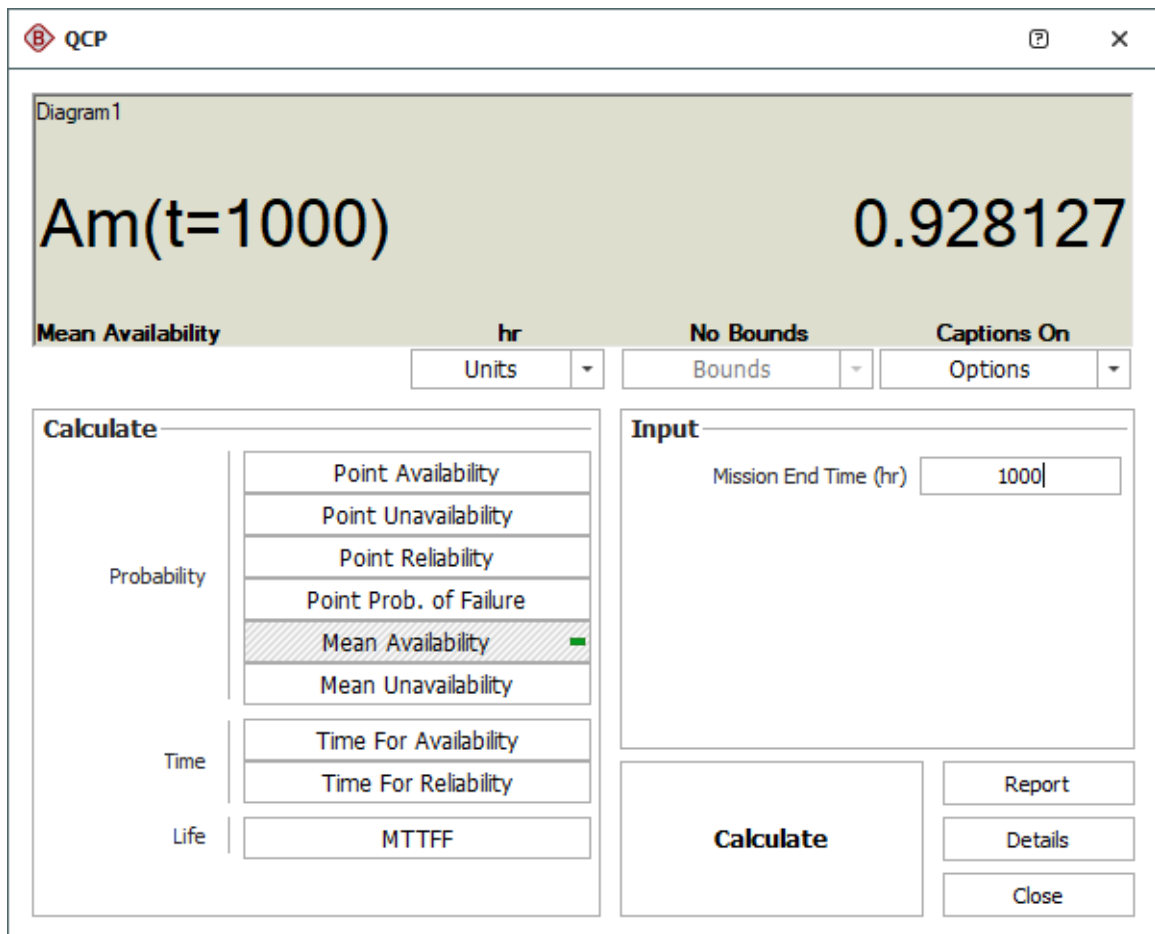
The screenshot shows the "Simulation Results Explorer" window. It features a toolbar with various icons for clipboard, view, and sheet operations. The main area displays a table of simulation results. The table is organized into sections: "System Overview", "General", "Metrics", and "Summary Metrics". The table includes columns for various metrics and their values.

	A	B	C
1	System Overview		
2	General		
3	Mean Availability (All Events):	0.9281	
4	Std Deviation (Mean Availability):	0.0778	
5	Mean Availability (w/o PM, OC & Inspection):	0.9281	
6	Point Availability (All Events) at 1000 hr:	0.899	
7	Reliability at 1000 hr:	0.161	
8	Uptime (hr):	928.1271	
9	Total Downtime (hr):	71.8729	
10	Metrics		
11	Summary Metrics		
12	MTTF (hr):	739.3237	
13	MTBF (Total Time) (hr):	754.1478	
14	MTBF (Uptime) (hr):	699.945	
15	MTBE (Total Time) (hr):	755.287	
16	MTBE (Uptime) (hr):	701.0023	
17	MTTM (hr):	54.2847	
18	MTTR (hr):	54.2028	

7. Calculate metrics

Click the **QCP** icon on the control panel to open the Quick Calculation Pad.



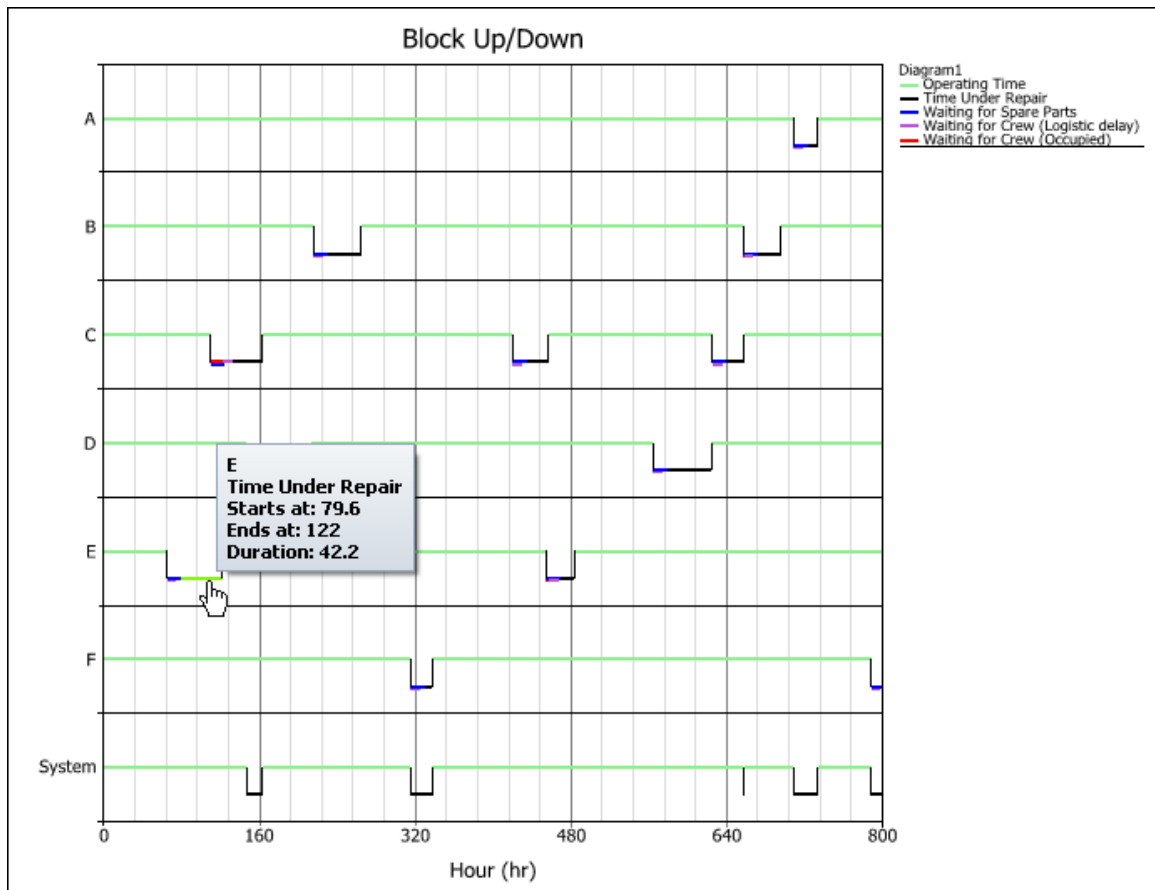


8. [View plots](#)

Click the **Plot** icon on the control panel to open the plot sheet.



Quick Tour of BlockSim



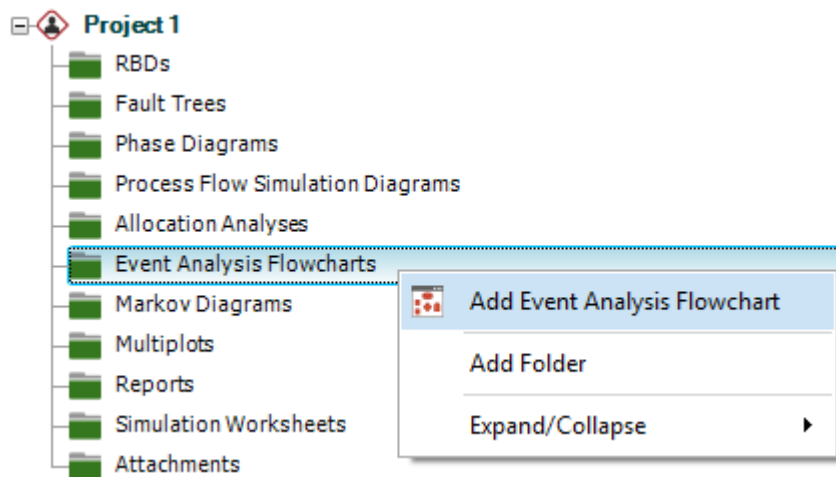
Using Event Analysis Flowcharts

Event analysis flowcharts (formerly RENO flowcharts) are used to build models of probabilistic or deterministic problems, processes or scenarios in order to help you understand and/or quantify them. The flowchart is a graphical representation of the mathematical process of predicting an outcome.

The example that follows demonstrates some of the basic techniques used in working with event analysis flowcharts. This simple flowchart generates failure times for 10 items.

1. [Add diagram](#)

Right-click the Event Analysis Flowcharts folder in the current project explorer and choose **Add Event Analysis Flowchart**.



2. Define resources

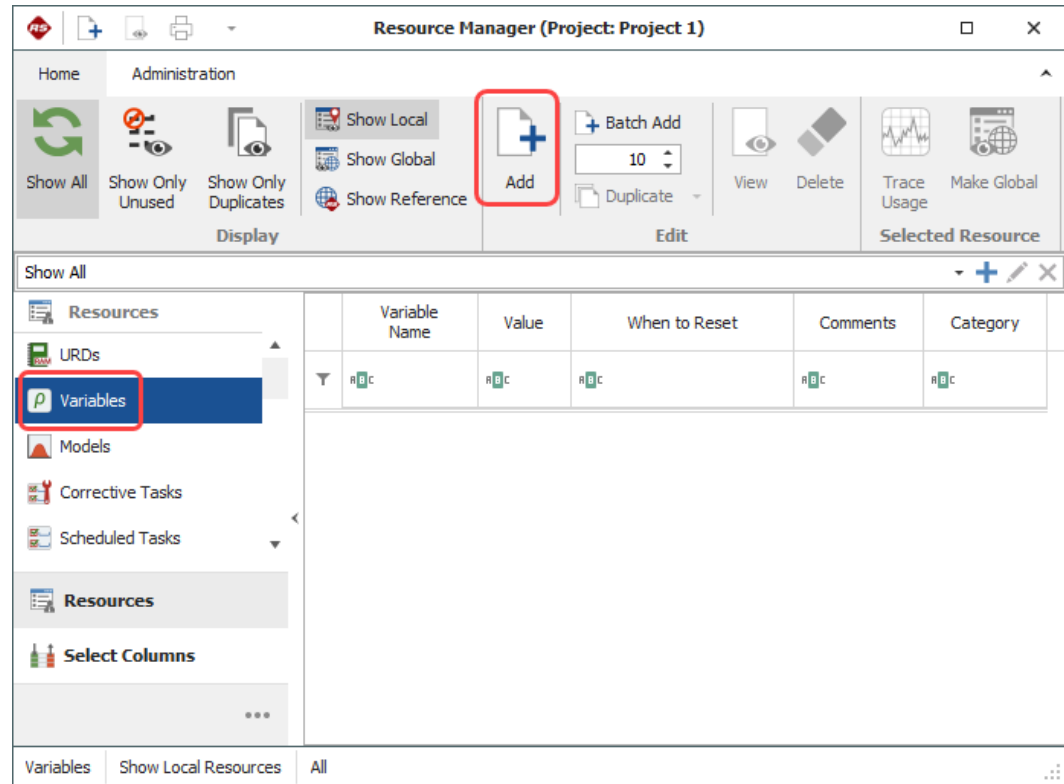
a. [Create a variable](#)

This resource will control the number of items to generate failure times for.

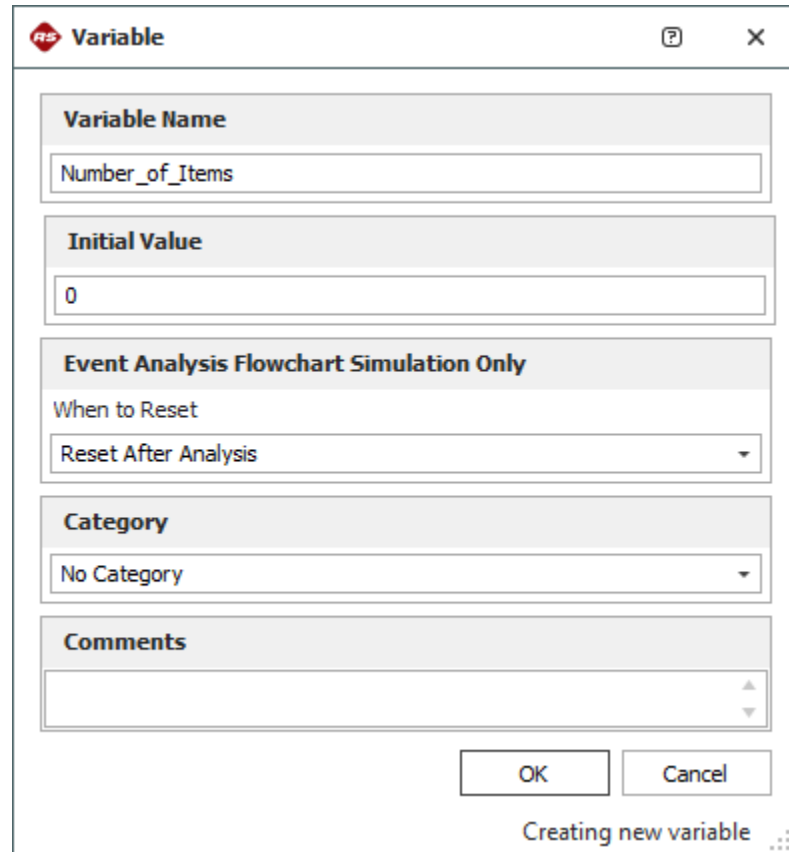
Choose **Home > ReliaSoft > Resource Manager**.



In the Resource Manager, choose **Variables** and then choose **Home > Edit > Add**.



Define the variable properties.



The image shows a 'Variable' dialog box with the following fields and options:

- Variable Name:** Number_of_Items
- Initial Value:** 0
- Event Analysis Flowchart Simulation Only:**
 - When to Reset: Reset After Analysis
- Category:** No Category
- Comments:** (Empty text area)

Buttons: OK, Cancel

Creating new variable

b. [Create a model](#)

This resource will define the model used to generate the failure times.

In the Resource Manager, choose **Models** and then choose **Home > Edit > Add**.

Define the model properties.

Model

Model Name
Item_Failure_Distribution

Model Properties

- Model Category**
 - Category: Reliability
- Model Type**
 - Type: Distribution
- Distribution**
 - Distribution: 2P-Weibull
- Parameters and Inputs**
 - Beta: 2.3
 - Eta: 1750
 - Units: Day (day)

OK Cancel

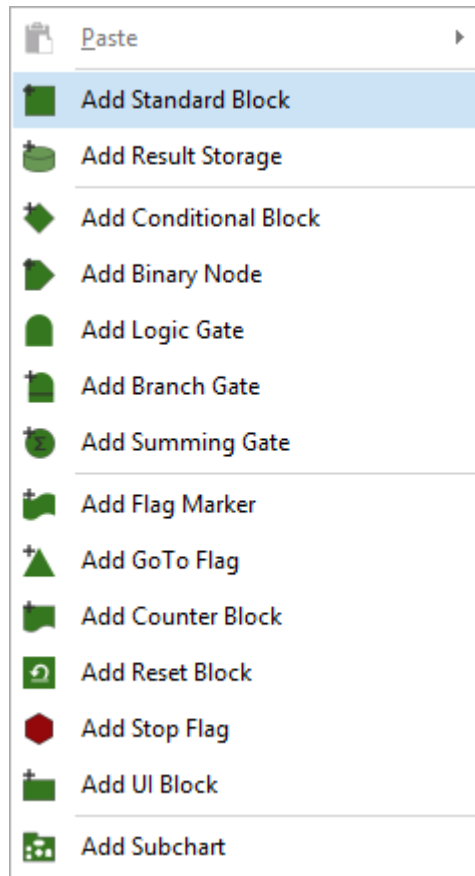
Creating new model

3. Add blocks

- a. Add a standard block (to increment the variable)

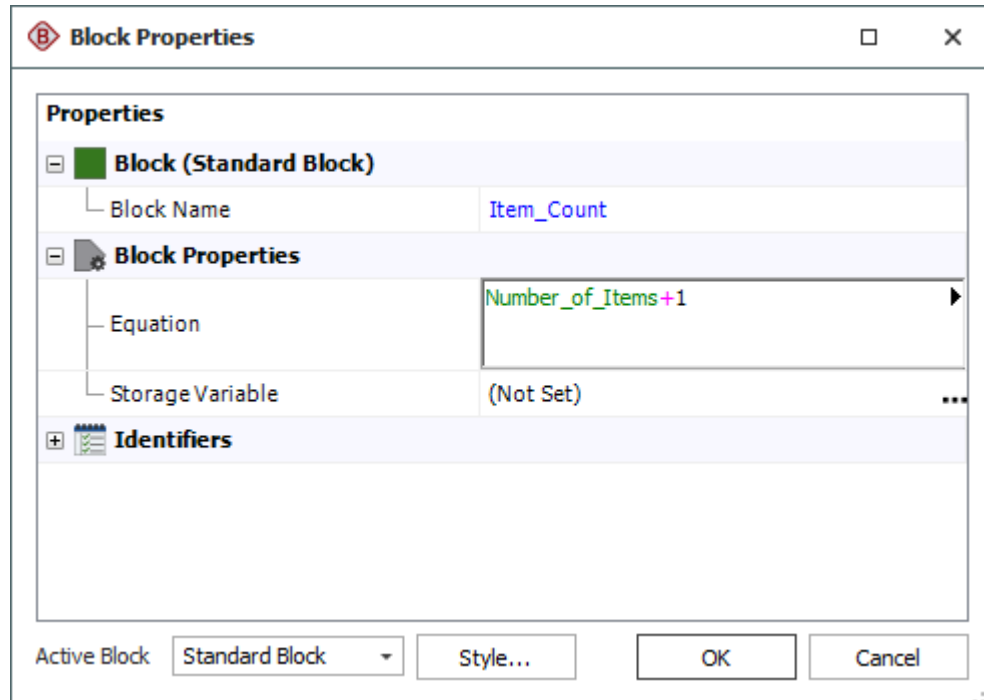
This block will increment the value of the Number_of_Items variable.

Right-click inside the diagram and choose to add a standard block.

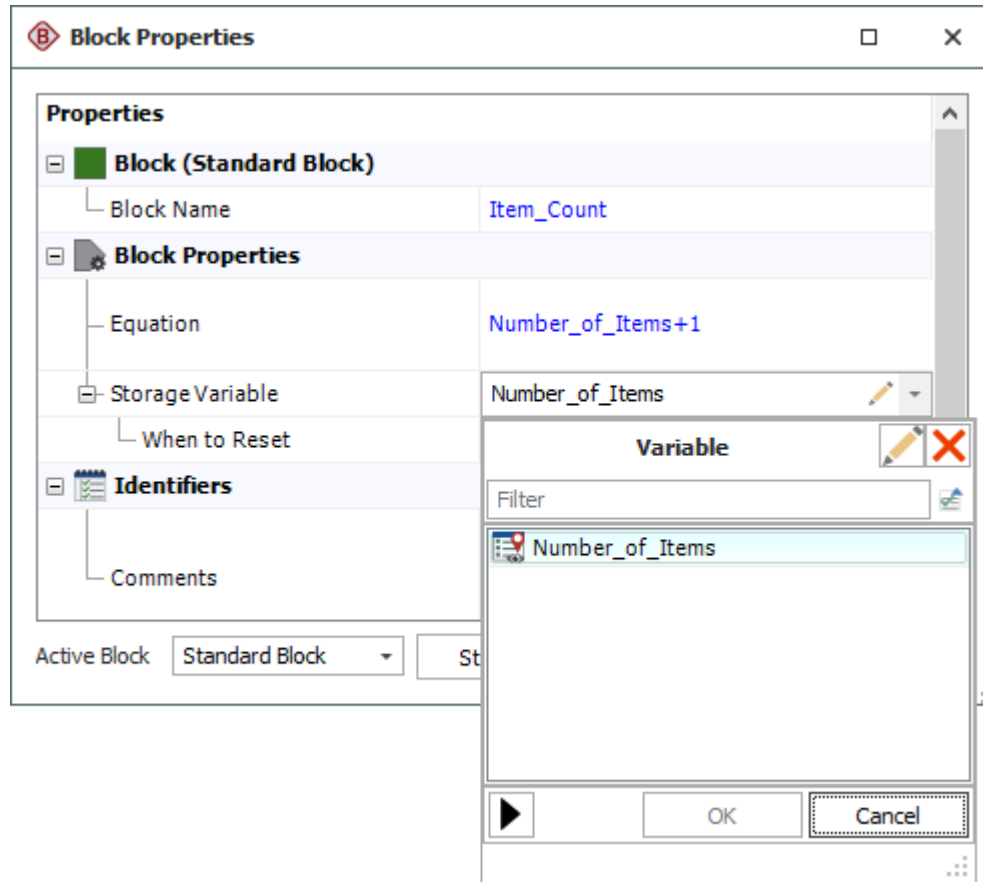


To edit the block's properties, right-click it and choose **Block Properties**.

Click inside the **Equation** field and type **Number_of_Items + 1**.



Click inside the **Storage Variable** field and select the **Number_of_Items** variable.

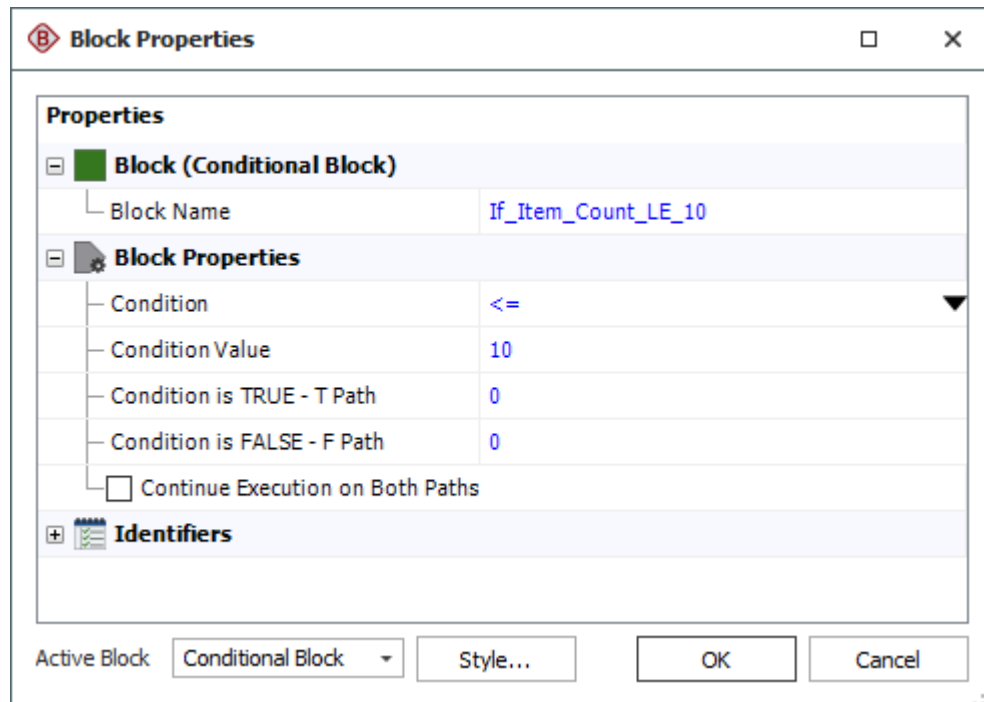


- b. Add a conditional block (i.e., create an IF statement)

This block will determine the simulation path based on whether the item count has reached 10.

Right-click inside the diagram and choose to add a conditional block.

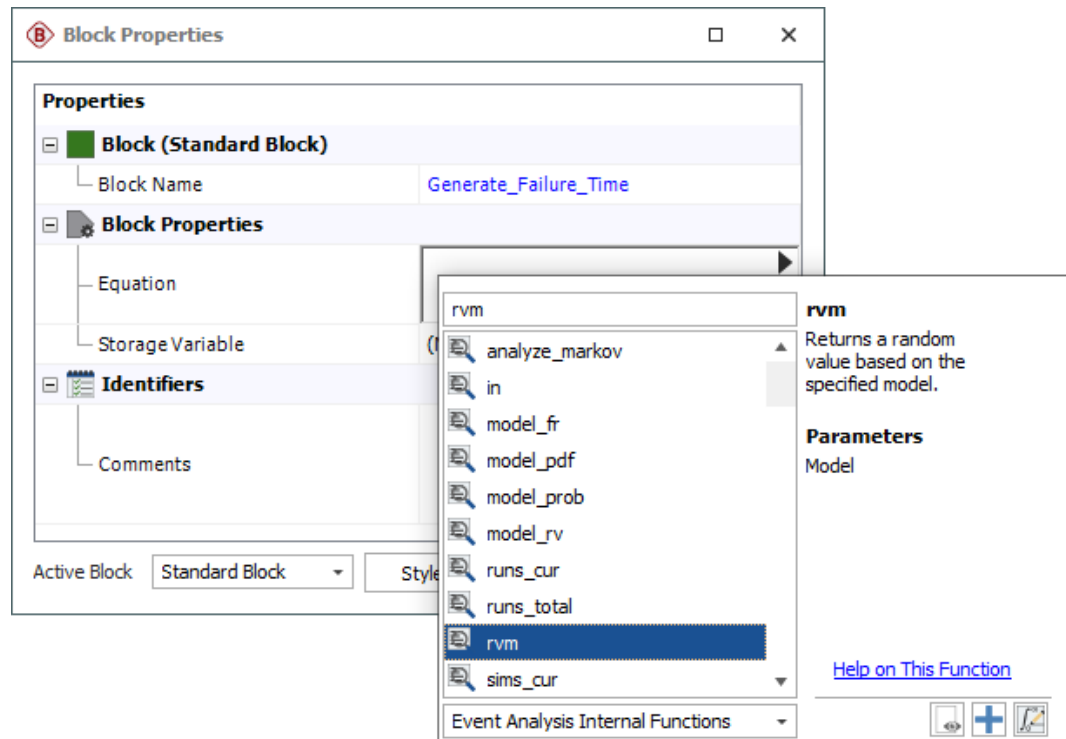
In the block's properties window, specify that if the incoming value is less than or equal to 10, a value of 0 will be passed on the "true" path. Otherwise, a value of 0 will be passed on the "false" path.



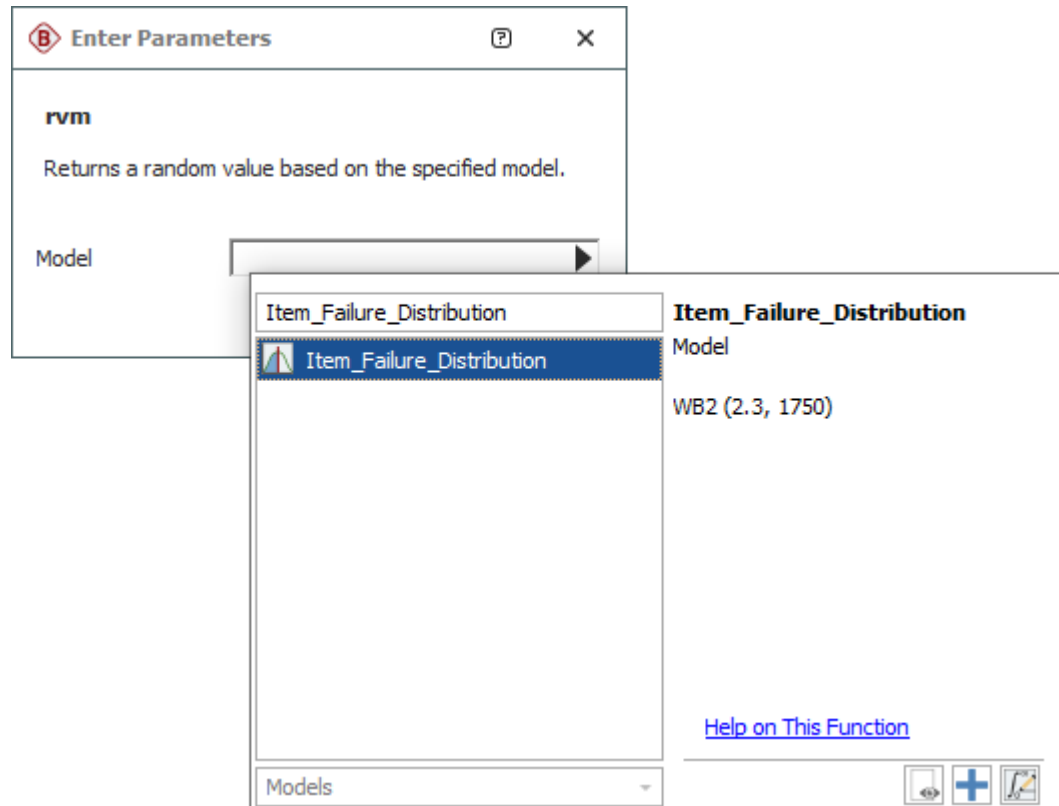
- c. [Add a standard block \(to generate the failure times\)](#)

This block will generate a failure time by returning a random value based on the Item_Failure_Distribution model.

In the block's properties window, right-click inside the **Equation** field, choose **Show Function Selector** then choose **Event Analysis Internal Functions** from the drop-down list. Double-click the **rvm** function.



In the Enter Parameters window that appears, right-click in the **Model** field and open the Function Selector. Double-click the **Item_Failure_Distribution** model.

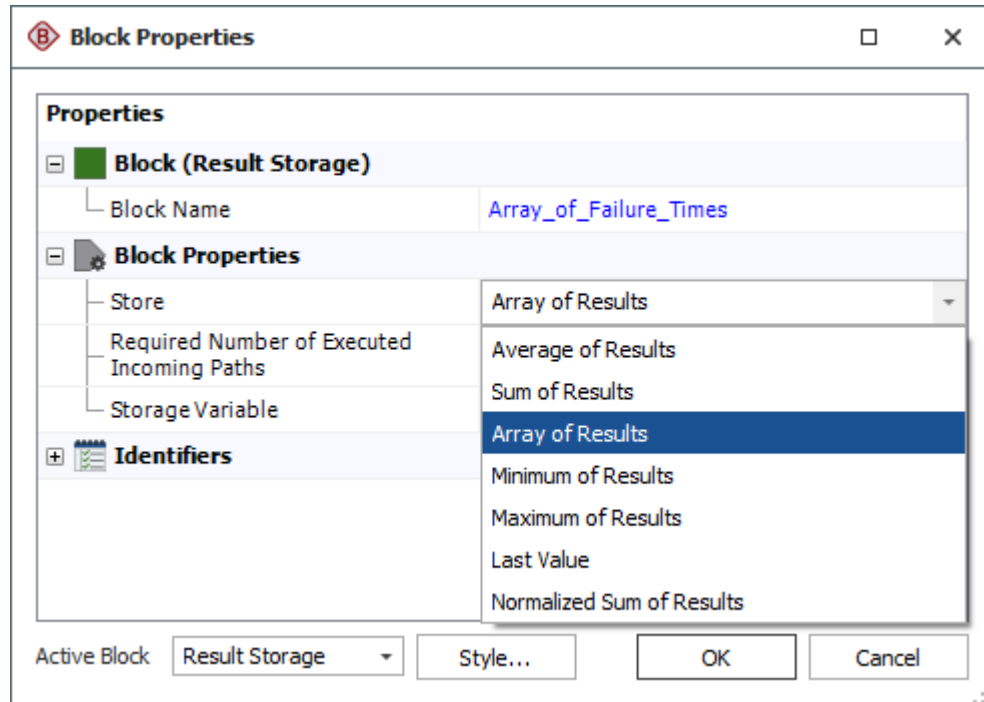


d. Add a result storage block

This block will store an array of the failure times generated by the standard block.

Right-click inside the diagram and choose to add a result storage block.

In the block's properties window, specify that it will store an array of results.

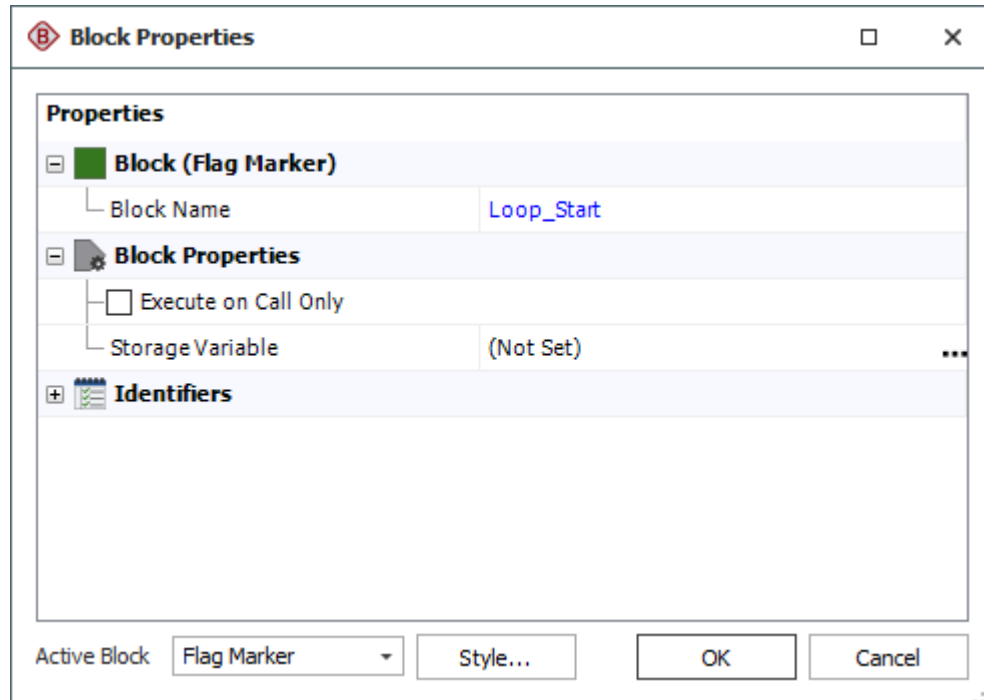


e. Create a FOR loop

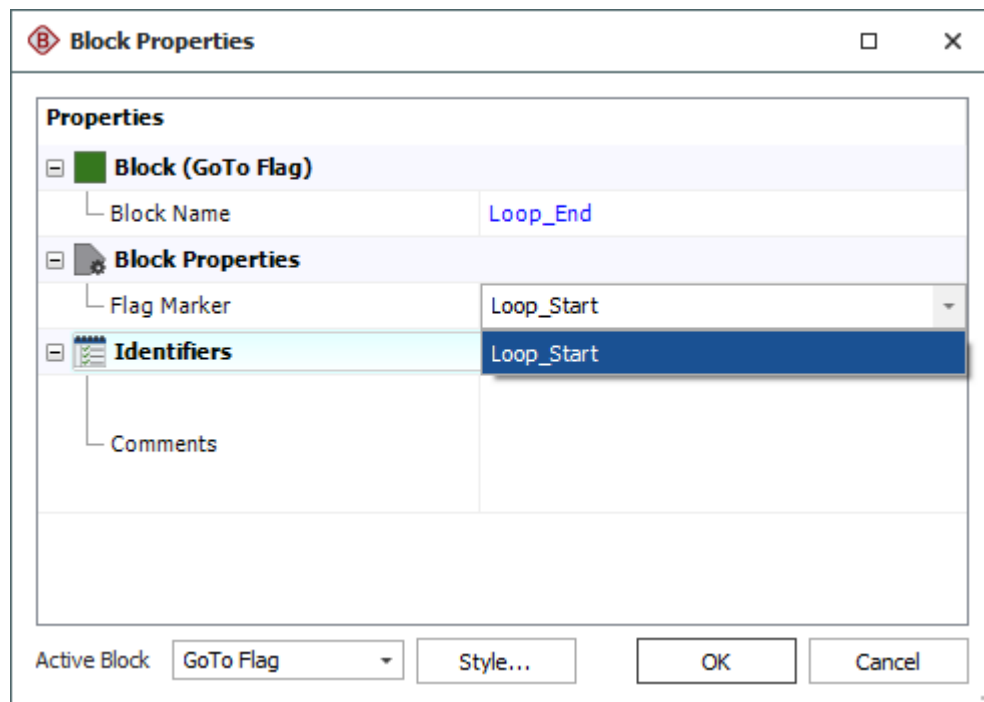
These blocks will form a loop that will cycle through the flowchart until the variable value reaches 10.

Add a flag marker block, a go-to-flag block and a stop flag.

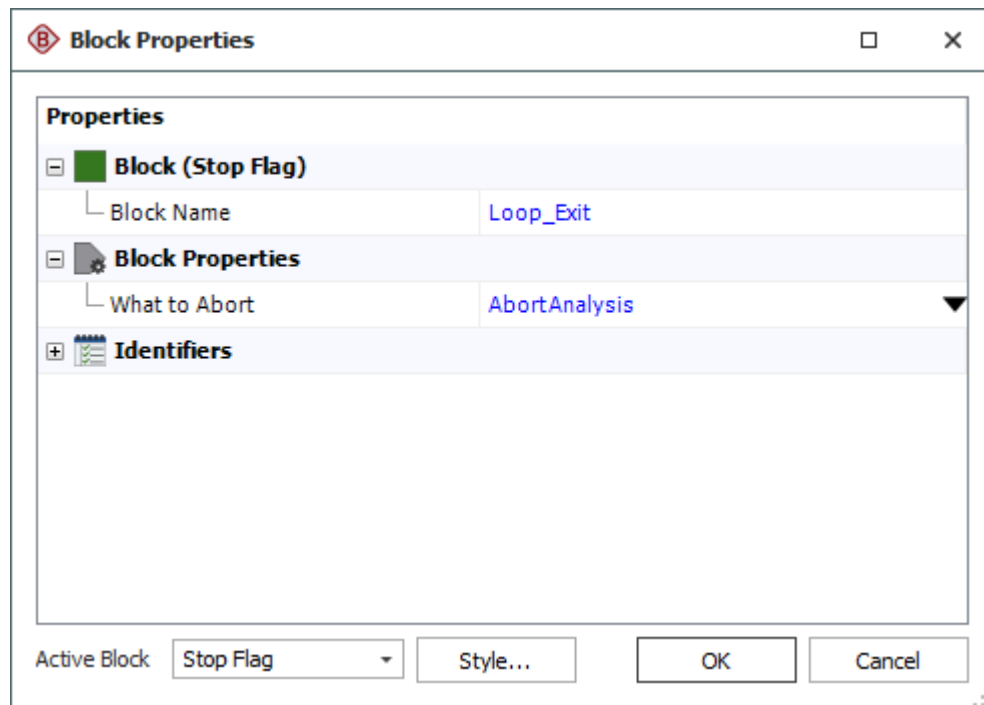
Define the properties.



The 'Block Properties' dialog box is shown for the 'Block (Flag Marker)'. The 'Properties' section includes a 'Block Name' field with the value 'Loop_Start'. The 'Block Properties' section has an unchecked 'Execute on Call Only' checkbox and a 'Storage Variable' field with the value '(Not Set)'. The 'Identifiers' section is currently empty. At the bottom, the 'Active Block' dropdown is set to 'Flag Marker', and there are 'Style...', 'OK', and 'Cancel' buttons.

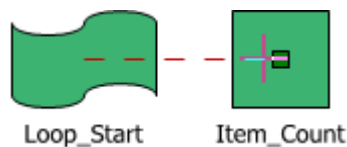


The 'Block Properties' dialog box is shown for the 'Block (GoTo Flag)'. The 'Properties' section includes a 'Block Name' field with the value 'Loop_End'. The 'Block Properties' section has a 'Flag Marker' dropdown menu with 'Loop_Start' selected. The 'Identifiers' section has a list with 'Loop_Start' selected. The 'Comments' section is empty. At the bottom, the 'Active Block' dropdown is set to 'GoTo Flag', and there are 'Style...', 'OK', and 'Cancel' buttons.

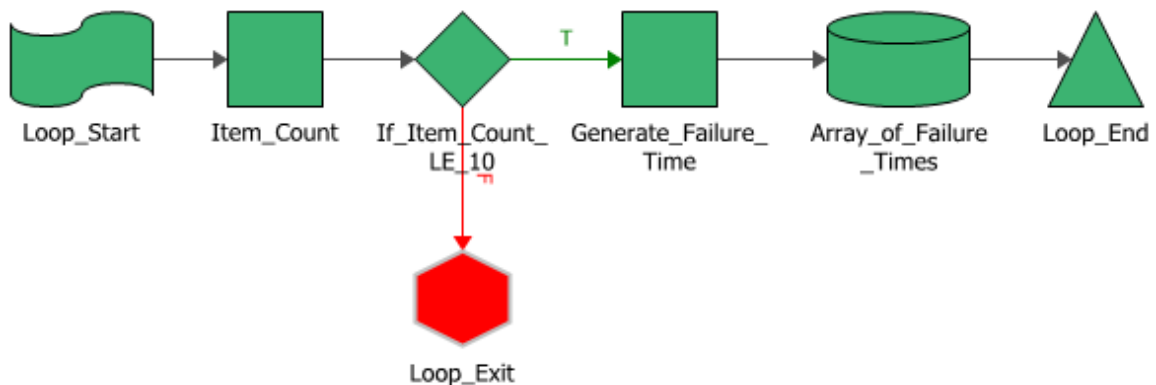


4. Connect blocks

Connect the blocks as shown below. To create each connection, hold down the **ALT** key, click the source block and drag a line to the destination block.



The first connector you create from the conditional block will be marked as the "true" path and the second as the "false" path. If necessary, you can switch these designations by right-clicking the connector and choosing **Set to Failure** or **Set to Success** on the shortcut menu.



5. Simulate the flowchart

Click the **Simulate** icon on the control panel.



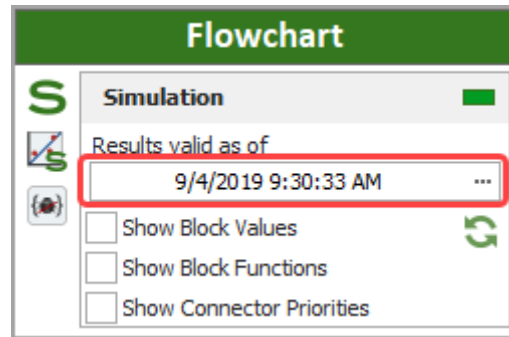
Specify to run a single simulation with a seed of 1 and click **Simulate**.

The image shows the 'Flowchart Simulation' dialog box. The main area is labeled 'Idle'. Below the main area are three tabs: 'General Settings', 'Sensitivity Analysis', and 'Multiple Analyses'. The 'General Settings' tab is selected. Within this tab, the 'Single Run Simulation Settings' section is highlighted with a red box. It contains two fields: 'Number of Simulations' set to '1' and 'Use a Seed' checked with a value of '1'. Below this is the 'Advanced Simulation Settings' section, which shows 'Sensitivity Analysis - Disabled' and 'Multiple Analyses - Disabled'. The 'Display Options' section at the bottom has 'Full Display' selected (indicated by a green bar), 'Update Increments' set to '10', 'Y-Axis' set to 'Auto' (with '-100' and '100' as options), and 'Display Result Storage Block' set to '(Not Set)'. At the very bottom, there is a checkbox 'Close this window when done' and three buttons: 'Simulate', 'Details', and 'Close'.

Flowchart Simulation			
Idle			
General Settings Sensitivity Analysis Multiple Analyses			
Single Run Simulation Settings			
Number of Simulations	1		
<input checked="" type="checkbox"/> Use a Seed	1		
Advanced Simulation Settings			
Sensitivity Analysis - Disabled			
Multiple Analyses - Disabled			
Display Options			
<input checked="" type="checkbox"/> Full Display		<input type="checkbox"/> Minimal Display	
Update Increments	10		
Y-Axis	<input type="checkbox"/> Auto	-100	100
Display Result Storage Block	(Not Set)		
<input type="checkbox"/> Close this window when done		Simulate	Details
		Close	

6. View the simulation results

From within the Flowchart Simulation Window, click **Details**. If you have closed the window, click the **Results valid as of** field on the diagram control panel.



To view the failure times generated during the simulation, click the result storage block in the navigation panel.

Block Name: Array_of_Failure_Times	
Flowchart(s) Location:	->Event Analysis Flowchart1
Storage Type:	Array
Runs Stored:	1
Result #	Array_of_Failure_Times
1	1930.926056
2	2008.575072
3	2546.727667
4	1291.008805
5	647.42902
6	2164.346878
7	1562.131953
8	525.730922
9	2397.02994
10	1653.12614

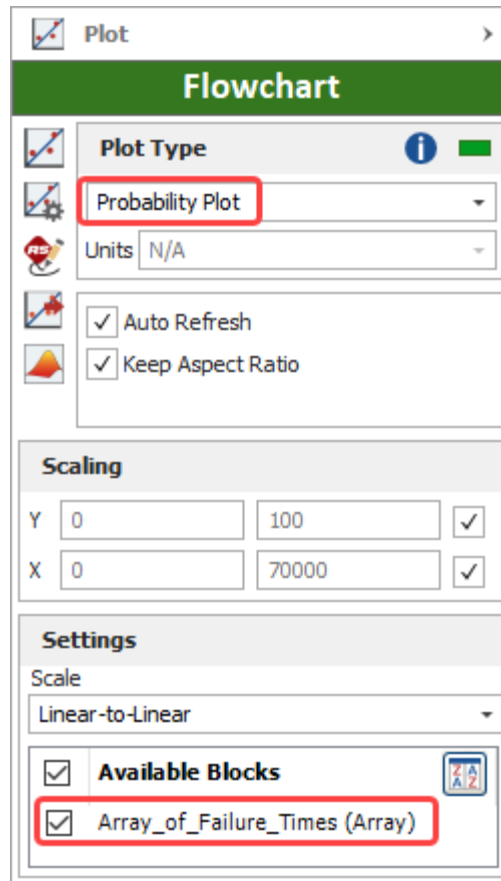
Event Analysis Flowchart1

7. [View plots](#)

Click the **Plot** icon on the diagram control panel to open the plot sheet.



On the plot sheet control panel, choose the plot type, then select the result storage block(s) to show in the plot.

A screenshot of the 'Plot' control panel in BlockSim. The panel has a green header bar labeled 'Flowchart'. Below the header, there are several sections: 'Plot Type' with a dropdown menu set to 'Probability Plot' (highlighted with a red box), 'Units' set to 'N/A', 'Auto Refresh' and 'Keep Aspect Ratio' checkboxes (both checked), 'Scaling' with 'Y' and 'X' axes (Y: 0 to 100, X: 0 to 70000), 'Settings' with 'Scale' set to 'Linear-to-Linear', and 'Available Blocks' with a checkbox for 'Array_of_Failure_Times (Array)' (highlighted with a red box).

Plot

Flowchart

Plot Type

Probability Plot

Units: N/A

☒ Auto Refresh

☒ Keep Aspect Ratio

Scaling

Y: 0 to 100

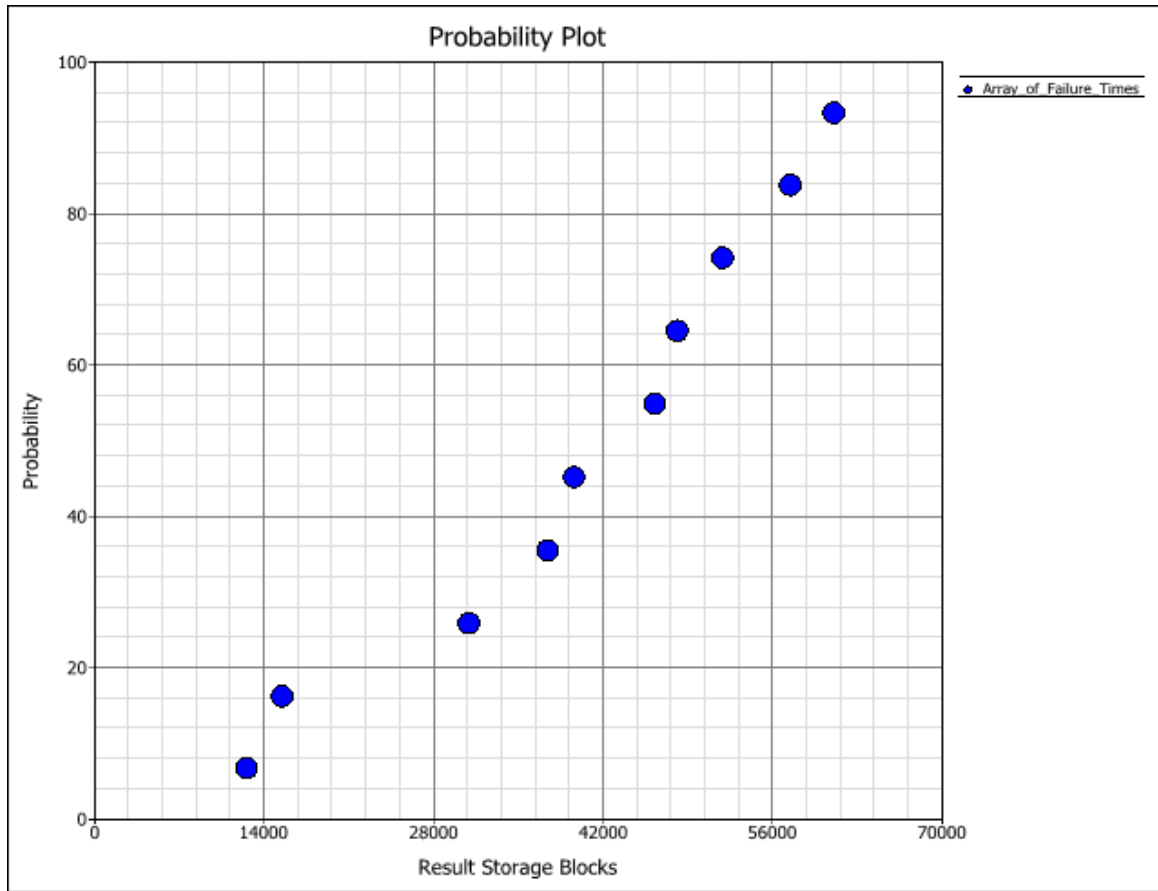
X: 0 to 70000

Settings

Scale: Linear-to-Linear

☒ **Available Blocks**

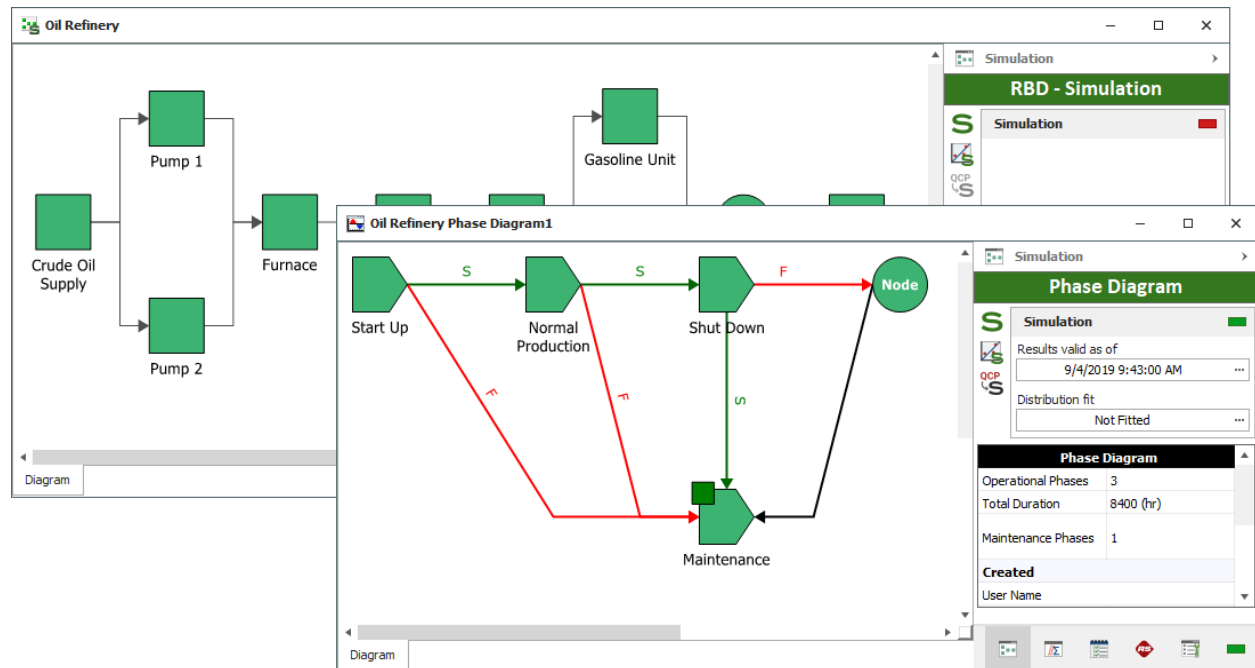
☒ Array_of_Failure_Times (Array)



More Analyses and Tools

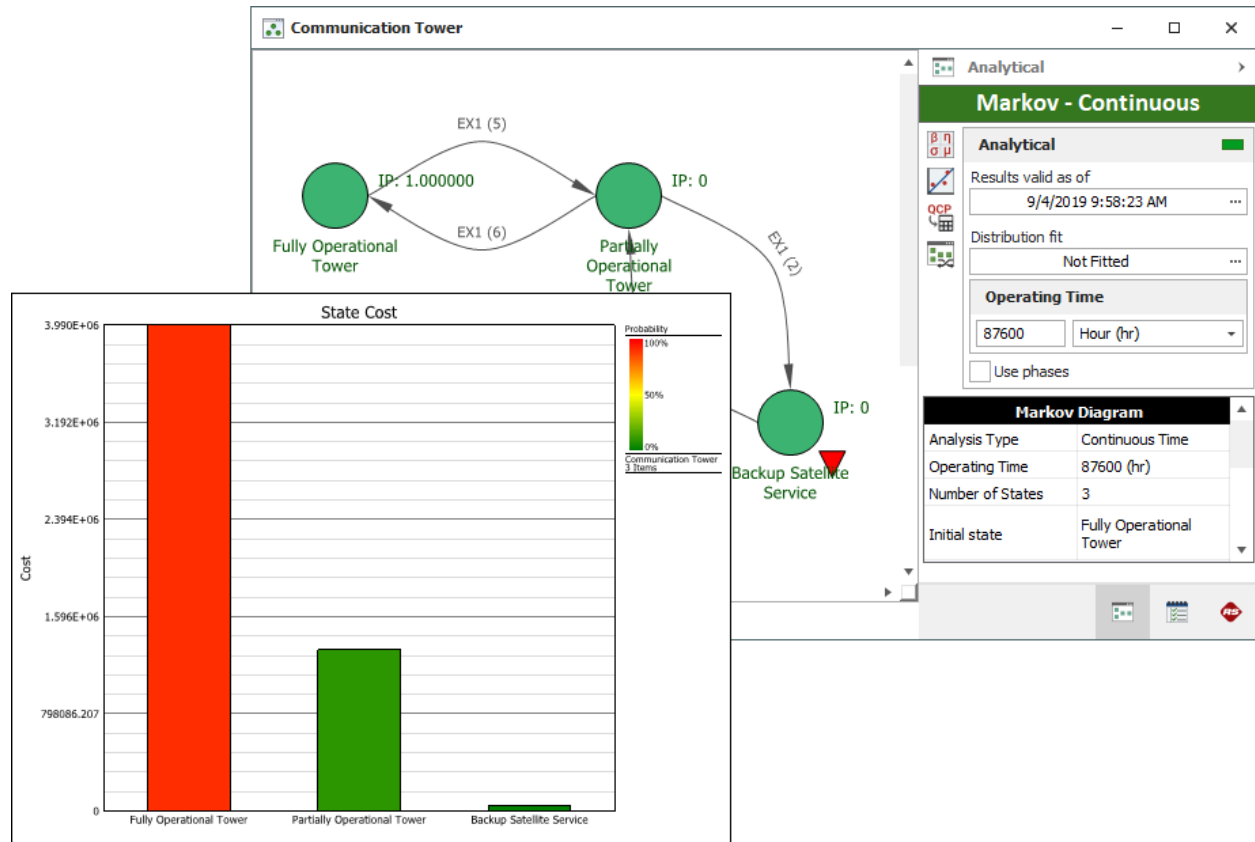
Phase Diagrams

Reliability phase diagrams represent scenarios in which a system may undergo changes over time.



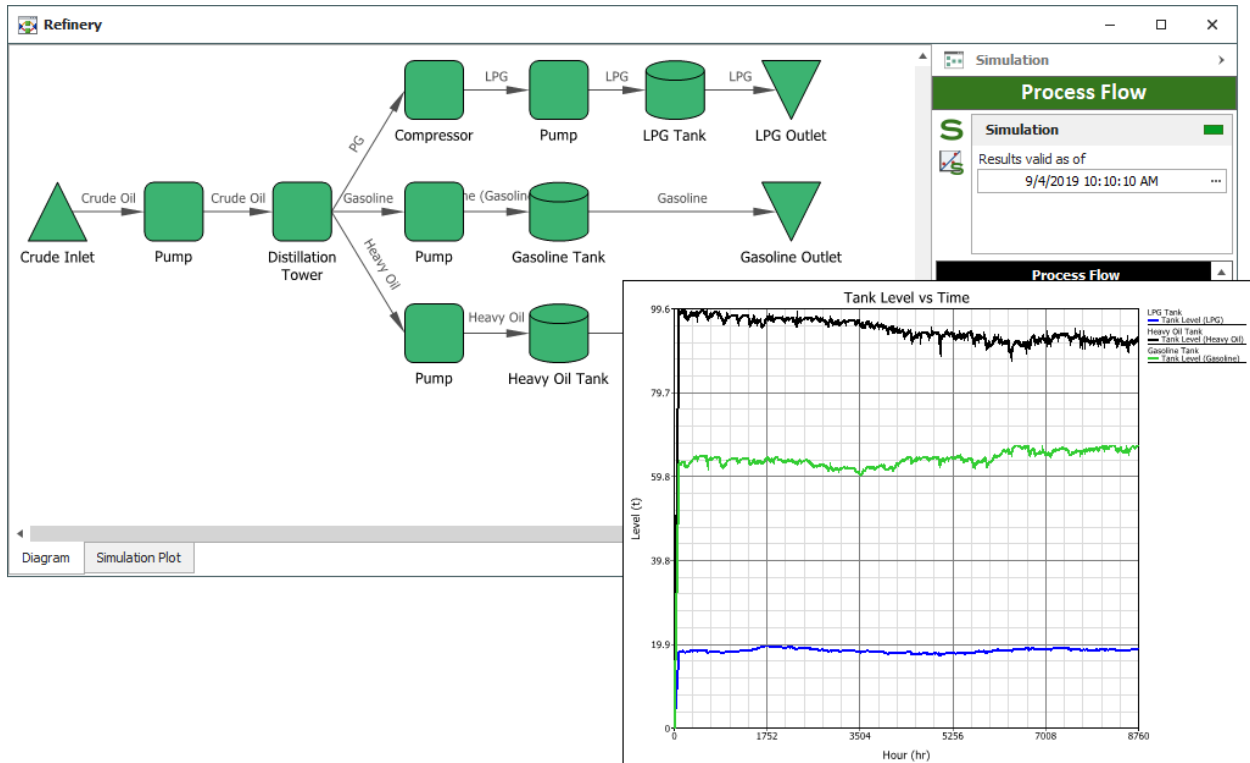
Markov Diagrams

Markov diagrams model the behavior of systems based on memoryless transitions between states, allowing you to look at partial or degraded working states, and to start analysis in varying states.



Process Flow Simulation Diagrams

A process flow simulation diagram is used to model a continuous process flow, typically a fluid flow, using a diagram in which the components are connected in flow-wise configuration. The simulation can be used to estimate the amount of raw material consumed by the process, as well as the amount of finished product and waste generated by the process in a given time frame.



Reliability Allocation

The allocation analysis tool helps determine the reliability requirements for individual components/assemblies that would be needed to achieve an overall reliability goal.

The screenshot displays the 'Allocation Analysis1' window. It features a table with columns: Block Name, Reliability Importance, Current Reliability, Maximum Achievable Reliability, Feasibility, Target Reliability, Equivalent Parallel Units, and Comments. The table lists 'Subsystem A' and 'Subsystem B' with their respective reliability values. A red arrow points from the 'Subsystem A' row in the top table to the 'Asmbly A' row in the bottom table. The bottom table also lists 'Asmbly B' with its reliability values. To the right of the tables are various controls including 'Allocation Type' (set to 'Cost Optimized'), 'Refresh', 'Inputs' (Target Reliability: 0.968431, Time: 500, Units: Hour (hr), Iterations: 50), 'Outputs' (Current Reliability: 0.952914, System Reliability: 0.968431), 'Color Limits' (0.00% - 100.00%; Range), and a 'Subsystem A' link.

Block Name	Reliability Importance	Current Reliability	Maximum Achievable Reliability	Feasibility	Target Reliability	Equivalent Parallel Units	Comments
Subsystem A	0.980968	0.952914	1	Easy (1)	0.968431	1.130834	
Subsystem B	0.952914	0.980968	1	Hard (9.9)	0.980968	1.000000	

Block Name	Reliability Importance	Current Reliability	Maximum Achievable Reliability	Feasibility	Target Reliability	Equivalent Parallel Units	Comments
Asmbly A	0.998807	0.954052	1	Moderate (5)	0.969342	1.131355	
Asmbly B	0.037541	0.979923	1	Moderate (5)	0.986369	1.099088	
Asmbly B	0.037541	0.979923	1	Moderate (5)	0.979923	1.000000	
Asmbly B	0.037541	0.979923	1	Moderate (5)	0.979923	1.000000	

Allocation Analysis1

Allocation Type: Cost Optimized

Refresh

Inputs

Target Reliability: 0.968431

Time: 500

Units: Hour (hr)

Iterations: 50

Outputs

Current Reliability: 0.952914

System Reliability: 0.968431

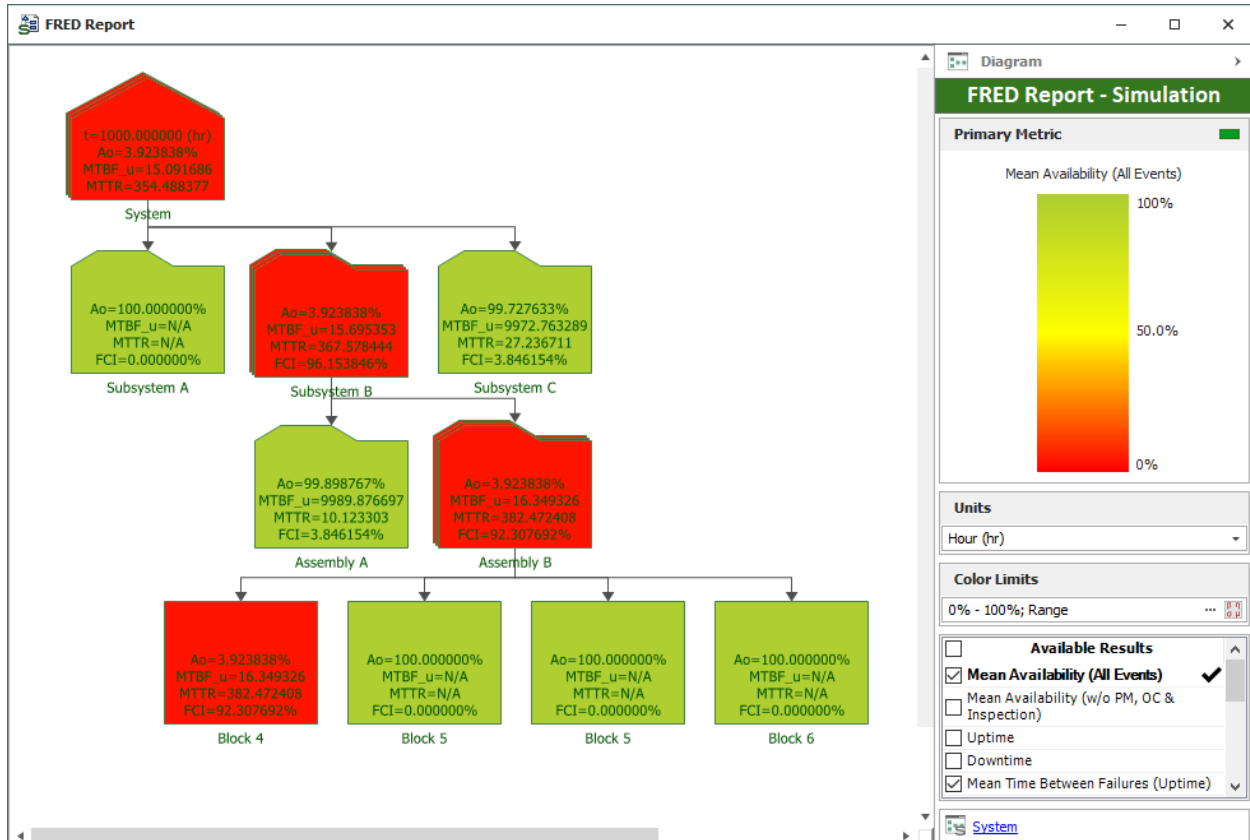
Color Limits

0.00% - 100.00%; Range

Subsystem A

FRED Reports

FRED reports provide a graphical demonstration of the reliability and maintainability/availability characteristics of the components in a system and help to identify the components that may require improvement.



Optimum Replacement

The Optimum replacement tool helps to determine the best time to inspect and/or replace components, based on the costs for planned and unplanned maintenance.

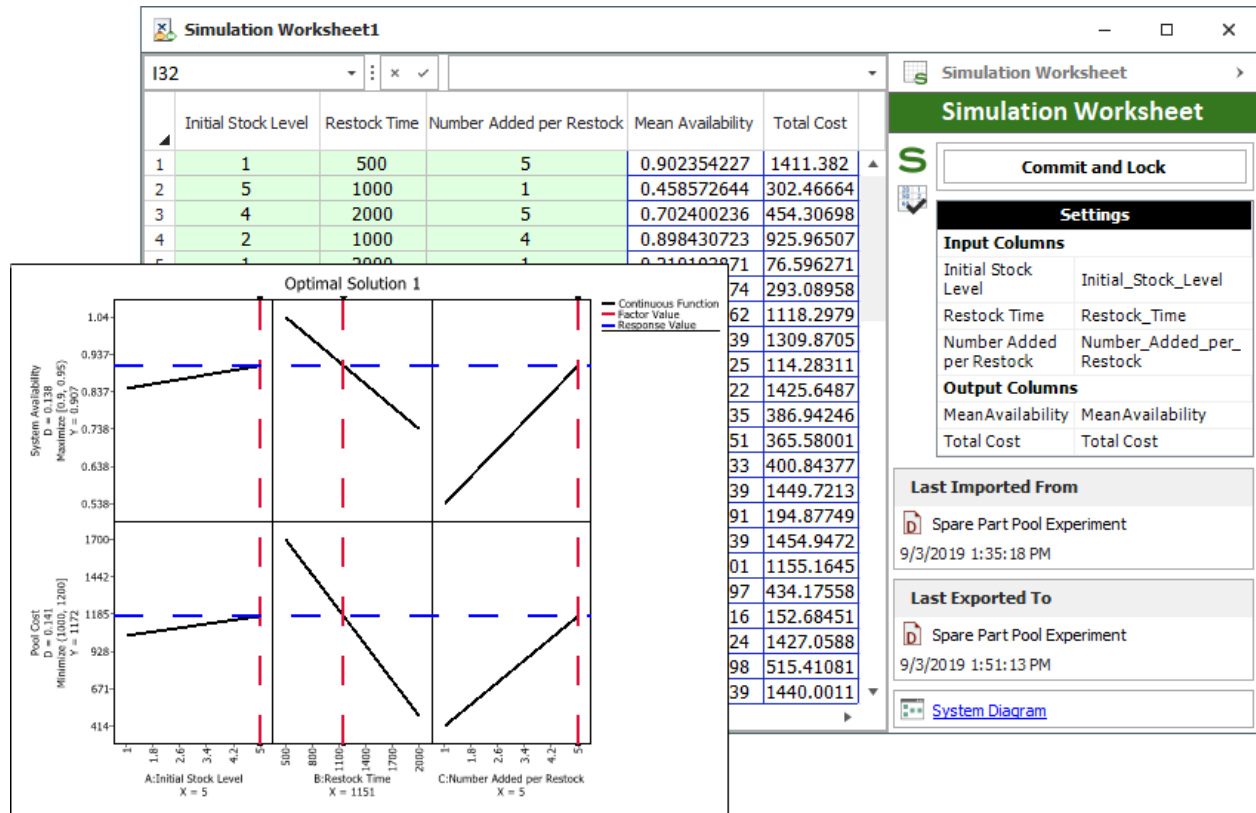
The Optimum Replacement tool interface displays a table of component data and a summary field. The table has the following columns: Block Name, Planned Replacement Cost, Unplanned Replacement Cost, Optimum Replacement Time (hr), and Replacement Cost per Unit Time (hr). The data is as follows:

Block Name	Planned Replacement Cost	Unplanned Replacement Cost	Optimum Replacement Time (hr)	Replacement Cost per Unit Time (hr)
Oil & Filter	30	5000	3196.434610	0.011045
Water Pump	700	4000	37209.829755	0.038682
Timing Belt	800	4500	37209.829755	0.036619
Air Filter	25	1500	3196.434610	0.012295
Spark Plugs	80	250	37209.829755	0.008932
Fuel Filter	70	800	10920.363780	0.009673

Below the table, the Replacement Cost Per Unit Time (hr) is displayed as 0.117246.

Simulation Worksheets

Simulation worksheets can vary values that are used when simulating an RBD or a flowchart, allowing you to investigate the effect of various factors on the simulation results (e.g., how the restocking interval and initial quantity in a spare part pool affect the cost of maintaining a system). The values can be entered manually, or can be transferred from an experiment design folio in Weibull++. After simulation, you can transfer the results into the design folio in Weibull++ for analysis and/or optimization.



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 - (c) business interruption;

- (d) loss of the use of money or anticipated savings;
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provided that this clause 9.2 shall not prevent claims for loss of or damage to your tangible property that fall within the terms of clause 8 or a claim for a refund of the licence fees paid to the Licensor or the Authorised Reseller (as applicable) for the licence of the Software Products.

- 10.3 Subject to clause 9.1 and clause 9.2, the Licensor's maximum aggregate liability under or in connection with this Licence Agreement, or any collateral contract, whether in contract, tort (including negligence) or otherwise, shall be limited to a sum equal to the fees paid by you to the Licensor or the Authorised Reseller (as applicable) for the licence of the Software Products.
- 10.4 Subject to clause 9.1, clause 9.2 and clause 9.3, the Licensor's liability for infringement of third party intellectual property rights shall be limited to breaches of third party rights subsisting in the UK and USA.
- 10.5 This Licence Agreement sets out the full extent of the Licensor's obligations and liabilities in respect of the supply of the Software and Documentation. In particular, there are no conditions, warranties, representations or other terms, express or implied, that are binding on the Licensor except as specifically stated in this Licence Agreement. Any condition, warranty, representation or other term concerning the supply of the Software and Documentation which might otherwise be implied into, or incorporated in, this Licence Agreement, or any collateral contract, whether by statute, common law or otherwise, is hereby excluded to the fullest extent permitted by law.

11. Term and Termination

- 11.1 This Licence Agreement is effective for the period referred to clause 2.1 or until otherwise terminated in accordance with that clause. The Licensor may terminate this Licence Agreement immediately by written notice to you if:
 - (a) save in respect of a Paid Up Licence, if you purchase the Software Products directly from the Licensor, you fail to pay any renewal or other fees due by you to the Licensor in respect of this Licence Agreement;
 - (b) you fail to comply with any provisions of this Licence Agreement;
 - (c) you commit a material or persistent breach of this Licence Agreement which you fail to remedy (if remediable) within 14 days after the service on you of written notice requiring you to do so; or
 - (d) a petition for a bankruptcy order to be made against you has been presented to the court; or
 - (e) where you, as the Corporate Licensee, become insolvent or unable to pay its (the company's) debts, enters into liquidation, whether voluntary or compulsory (other than for reasons of bona fide amalgamation or reconstruction), passes a resolution for its winding-up, has a receiver or administrator manager, trustee, liquidator or similar officer appointed over the whole or any part of its assets, makes any composition or arrangement with its creditors or takes or suffers any similar action in consequence of its debt, or becomes unable to pay its debts or ceases to trade.
- 11.2 In the event of termination in accordance with clause 10.1 you must immediately pay to the Licensor any sums due to the Licensor under the Licence Agreement and (at the Licensor's sole option) you must return, destroy or delete all copies of the Software Products from all storage media in your control and,

in the case of destruction, certify to us that you have done so.

12. Export

- 12.1 You will comply with all applicable laws, rules, and regulations governing export of goods and information, including the laws of the countries in which the Software Products was created. In particular, you will not export or re-export, directly or indirectly, separately or as a part of a system, the Software Products or other information relating thereto to any country for which an export licence or other approval is required, without first obtaining such licence or other approval.

13. General

- 13.1 You agree that the Licensor shall have the right, after supplying undertakings as to confidentiality, to audit any computer system on which the Software Products are installed in order to verify compliance with this Licence Agreement.
- 13.2 You agree that the Licensor may use your company name in Licensor's customer lists and other promotional materials describing your company as a customer or user of Licensor's software or services, as applicable, unless it receives written notice from you objecting to such use.
- 13.3 This Licence Agreement, its subject matter or its formation (including non-contractual disputes or claims) shall be governed by and construed in accordance with English law and submitted to the non-exclusive jurisdiction of the English courts.
- 13.4 This Licence Agreement constitutes the complete and exclusive statement of the agreement between the Licensor and you with respect to the subject matter of this Licence and supersedes all proposals, representations, understandings and prior agreements, whether oral or written, and all other communications between us relating to that subject matter except for those expressly referred to in this Licence Agreement.
- 13.5 Any clause in this Licence Agreement that is found to be invalid or unenforceable shall be deemed deleted and the remainder of this Licence Agreement shall not be affected by that deletion.
- 13.6 Failure or neglect by either party to exercise any of its rights or remedies under this Licence Agreement will not be construed as a waiver of that party's rights nor in any way affect the validity of the whole or part of this Licence Agreement nor prejudice that party's right to take subsequent action.
- 13.7 This Licence Agreement is personal to you and you may not assign, transfer, sub-contract or otherwise part with this Licence or any right or obligation under it without the Licensor's prior written consent.