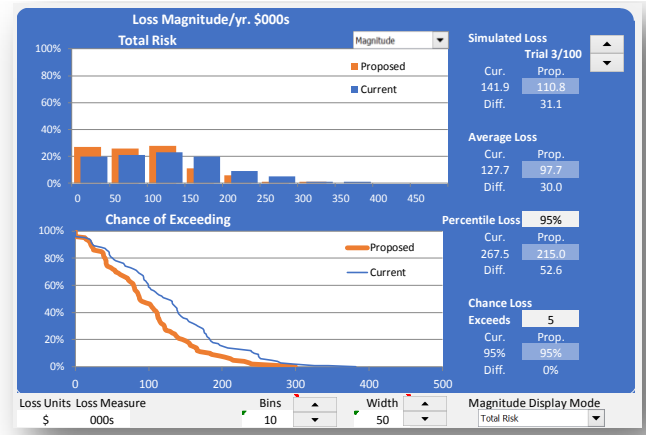
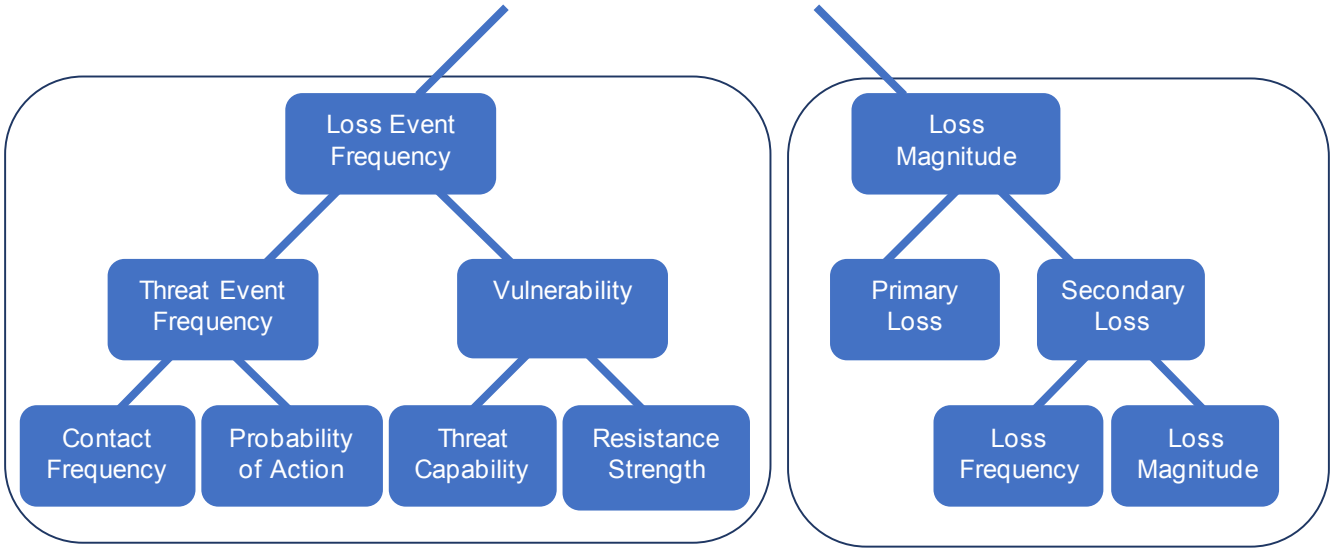
Open FAIR™ Risk Analysis Tool User's Manual





The Open FAIR™ Risk Analysis Tool, based on the Open FAIR™ Risk Analysis (O-RA) standard, a standard of The Open Group, lets analysts perform a probabilistic comparison of two risk states: the "current" (*status quo*) state and a "proposed" (mitigated) state. It performs interactive Monte Carlo Simulation, with 100 trials run instantaneously per keystroke to provide a "gut feel" for the impact of the inputs on the distributions of Loss Events and Loss Magnitude. Larger numbers of trials may be specified, with 10,000 requiring about 20 seconds on a typical computer.

The Tool is built on the open SIPmath™ Standard from ProbabilityManagement.org, which communicates uncertainties as auditable data, and which may be used across such platforms as Microsoft® Excel®, Matlab®, JavaScript™, and R. The tool is extensible, in that an experienced user can make changes to the distributional assumptions with freely available tools. It is auditable, in that individual Monte Carlo trials as well as all formulas may be inspected. Furthermore, the results of multiple analyses may be rolled up to create a probabilistic analysis of total risk across various units of an enterprise.

This document describes the functions of the Risk Analysis Tool. It is recommended that you make a back-up of the Tool before proceeding.

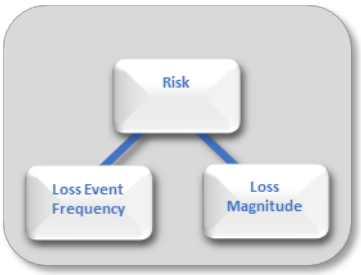
THE Open GROUP

SAN JOSÉ STATE UNIVERSITY

Probability Management

Navigation

The Tool consists of three modules: Risk, Loss Event Frequency, and Loss Magnitude. Navigation is performed by clicking on the buttons shown.

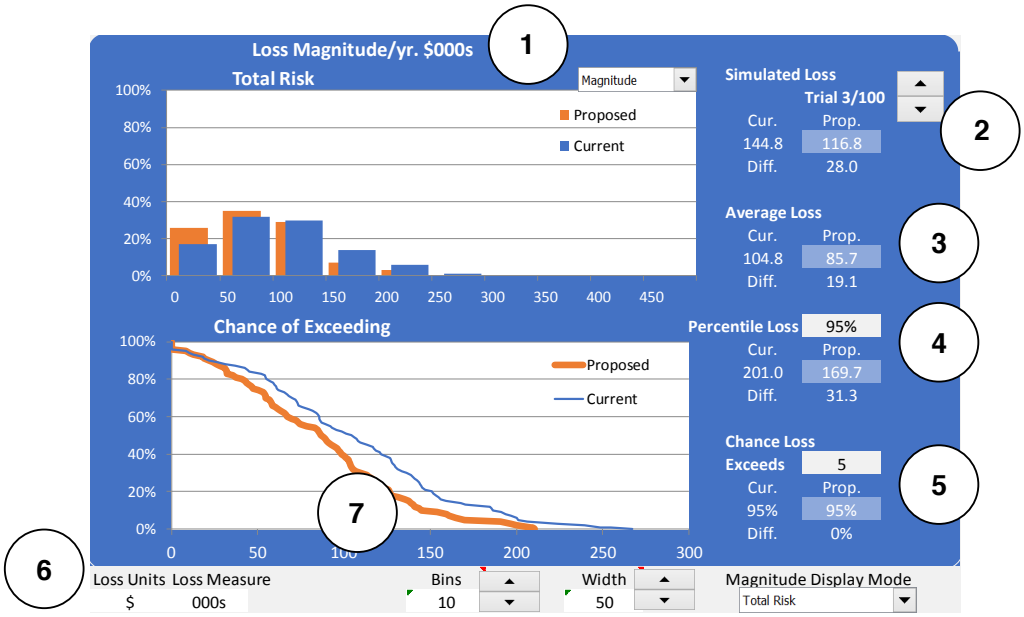


Risk	Set up the local currency and loss measure of annual loss exposure, view graphs, and statistics.
Loss Event Frequency	Work at any level of the Open FAIR Loss Event Frequency tree to enter Loss Event-related data, view graphs, and statistics.
Loss Magnitude	Enter Loss Magnitude data, either at the top level, or at Primary or Secondary detailed level.

Changing Number of Trials

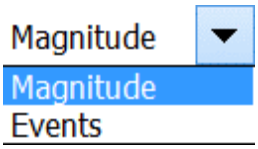
If your system allows you to use Macros, the Change Trials Button on the SIPmath Trials ribbon will let you adjust the trials between 1 and 1 million. However, 10,000 is the maximum recommended.

Risk Module Functions



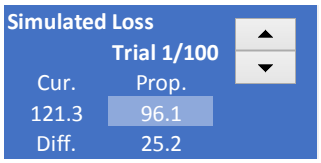
1 Select Magnitude/Loss Event

Select whether to display distributions of Loss Magnitude or Loss Events. This control may also be set in the Loss Event Frequency and Magnitude modules.



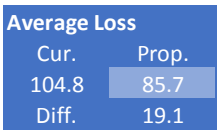
2 Scroll Through Trials

View Current and Proposed simulated loss for a particular Monte Carlo trial.



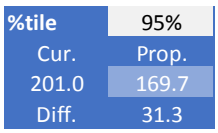
3 Average Loss/Events

The Average is the sum of losses or events on each Monte Carlo trial divided by the number of trials.



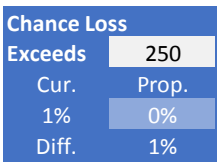
4 Percentile of Loss/Events

The percent of trials on which the loss is less than the specified amount in the white cell.



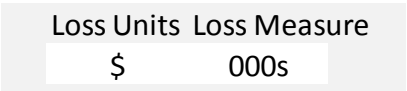
5 Chance of Exceedance

This is the chance that the loss or events exceeds the specified amount entered in the white cell.



6 Loss Units and Measures

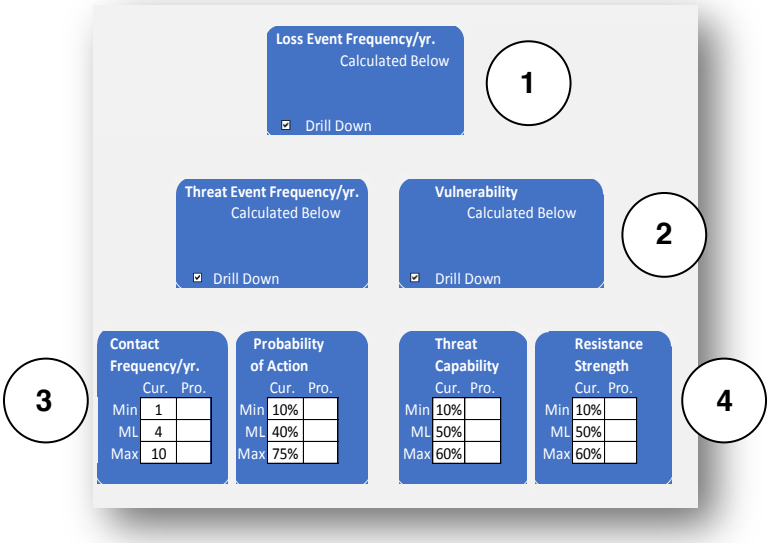
Specify Loss Units, such as $, Euros, and Measures, such as 000s or millions. These are set in the Risk module but apply in other modules.



7 Number and Width of Histogram Bins

These may be set from any module. Histogram width is only available in Magnitude mode (1 above).

Loss Event Frequency Functions



1 Top Level

Enter Current and Proposed Loss Event Frequency at this level to simulate triangular distribution of outcomes. Click Drill Down to enter data at the next level.

Loss Event Frequency/yr.

	Min	ML	Max
Current	1	2	5
Proposed	0	1	3

☐ Drill Down

2 TEF/Vulnerability Level

Again, triangular distributions are simulated. When working at this level, the data entered at the top level is ignored. Drill down to Contact/PoA level on the left or Capability/Resistance on the right.

Threat Event Frequency/yr.

	Min	ML	Max
Cur.	0	15	30
Prop.	0	14	25

☐ Drill Down

Vulnerability

	Min	ML	Max
Cur.	0%	20%	40%
Prop.	0%	20%	35%

☐ Drill Down

3 Contact Frequency/P of Action

Triangular distributions are generated. Again, higher levels are ignored.

Contact Frequency/yr.

	Cur.	Pro.
Min	1	
ML	4	
Max	10	

Probability of Action

	Cur.	Pro.
Min	10%	
ML	40%	
Max	75%	

4 Capability/Resistance

Higher levels are ignored. Probability of Vulnerability is returned.

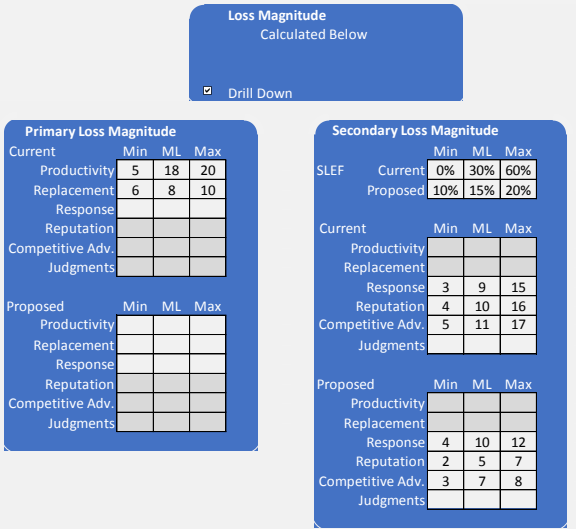
Threat Capability

	Cur.	Pro.
Min	10%	
ML	50%	
Max	60%	

Resistance Strength

	Cur.	Pro.
Min	10%	
ML	50%	
Max	60%	

Loss Magnitude Functions

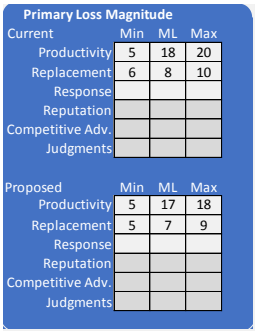


1 Top Level

Enter Current and Proposed Loss Magnitudes at this level to simulate triangular distribution of outcomes. Click Drill Down to enter data at the next level.

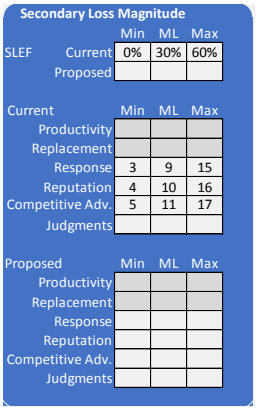
2 Primary Loss Magnitude

Triangular distributions are simulated for various categories of loss. When working at this level, the data entered at the top level is ignored.



3 Secondary Loss Frequency and Magnitude

Triangular distributions are generated. Again, higher levels are ignored.



4 Magnitude Display Mode

It is possible to view results for a single Loss Event. Choose from the options shown. When these options are chosen, the Magnitude/Event option must be set to Magnitude. When using this mode you will need to adjust the histogram bins and widths to properly view a single loss.