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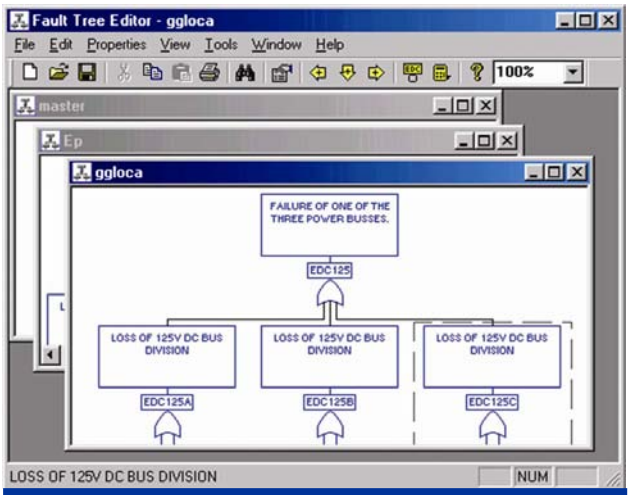
CAFTA Fault Tree Analysis



Fault Tree Analysis—CAFTA is the industry leader in fault tree analysis for large, complicated, or multi-user projects. CAFTA allows you to build, quantify, and analyze fault tree models of any size or complexity.

For more than 22 years, CAFTA has addressed the complex needs of customers who design and operate the large engineered systems found in power generation, communications, transportation, aviation, and space applications. Since 1992, the Electric Power Research Institute (EPRI) has helped develop a suite of Windows-based PSA (probabilistic safety assessment) software tools and applications called the Risk & Reliability Workstation. CAFTA, the state-of-the-art in fault tree analysis, is an integral piece of the R&R Workstation.

With a global user base greater than 1,700, CAFTA has become the world leader in fault tree analysis. CAFTA is now used at more than 70 power plants, and additional customers include most major aircraft manufacturers, NASA, and chemical processors.

CAFTA is designed to address the problems faced when performing fault tree/event tree analysis on a system or group of systems. These problems include the management of fault trees and event reliability data; the preparation and evaluation of models; and the review, analysis, and documentation of cutset results.

CAFTA's set of highly interactive editors, databases, and model evaluation tools promote the smooth flow of information throughout the model development, quantification, and results interpretation process. CAFTA streamlines the analysis process and also makes the results more meaningful and useful. More than a design review tool, CAFTA is a tool for improving the reliability, availability, maintainability, and safety of a system throughout its lifetime.

Using CAFTA, a single analyst can accomplish the work of many. The integrated reliability databases, plotting features, and cutset review tools of CAFTA let the user focus on improving system efficiency.

CAFTA Capabilities

- Full graphic editing of fault trees
- Point-and-click creation of new gates
- Copying and pasting between fault trees
- Setting multiple trues and falses
- Fast cutset generation
- Calculation of probabilities for all gates in a fault tree without cutsets
- Ability to handle thousands of failure events
- Correct accounting for replicated events, support systems, and common causes
- User control of fonts and colors
- Network support, unlimited file sizes, and multiple windows
- Document-quality production of fault tree graphics

CAFTA Integrated Modules

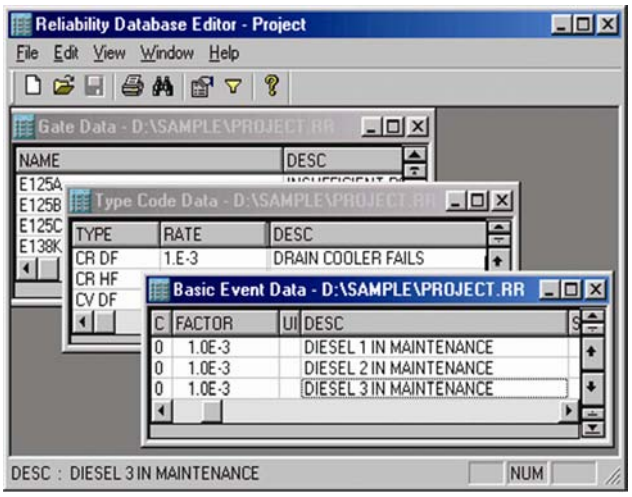
Fault Tree Editor

The Fault Tree Editor provides a flexible environment to build, analyze, and maintain fault trees. Features include:

- Support of unlimited gates and basic events per fault tree
- Color coding of events on screen and on plots
- Automatic naming of gates
- Support of all common gate types including negations and Priority ANDs
- Integrated database editing from the fault tree
- Template for standard fault trees

Database Editor

The three-level Reliability Database Editor controls the body of the model data. Combined with the Fault Tree Editor, it makes the database easy to create, manipulate, and edit.



Reliability Database Editor

Capabilities of the Reliability Database Editor include:

- Separate basic event, failure rate, and gate database
- One failure rate mapped to multiple basic events
- Calculation of unavailability from failure rate and exposure time
- Six calculation options, including mission times, test intervals, and repair times, plus user-defined equations
- Automatic time unit conversion
- User-definable fields and field widths

Cutset Generator

The Cutset Generator is a powerful code that generates minimal cutsets from the Fault Tree Editor. Features include:

- Truncation on cutset probability or size
- The use of all available memory to solve models
- Solutions for any gate in the model
- Probability calculations

Cutset Editor

The Cutset Editor provides the ability to see probability and structural changes without requantification. Features such as sorting and on-screen recalculation make it easy to review results and generate reports. Other features allow the user to add, delete, merge and subsume cutsets. Features include:

- Unlimited number of cutsets per model
- Support sensitivity studies
- Display of basic event importance measures
- Event descriptions displayed with cutset events
- Local and global change options that allow for quick changes
- Calculation of the probability, unavailability and failure rate of selected cutsets.

Technical Contact

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