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MADE 3.9.0

Release Notes

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MADE 3.9.0 release delivers an expansion of MADE's Fault Tree Analysis capabilities, equipping customers with a more powerful, flexible, and performance-optimized FTA environment. Alongside this, enhancements to Model-based RCM improve mission profile integration, audit traceability, and workflow reliability, while a new API version extends data exchange capabilities to support broader integration needs. Across the platform, targeted improvements to reliability block diagrams, together with a range of minor enhancements and bug fixes, address localization, reporting accuracy, and workflow consistency across maintainability, safety, hazard, and criticality analyses, reflecting a continued commitment to analytical depth, usability, and confidence in results.

Key features include:

- Fault Tree Analysis (FTA) Upgrades
- Model-based RCM (MBRCM) Enhancements
- API Enhancements - New Version v2.0.0
- Reliability Block Diagram and Analysis Viewer Improvements
- Minor Enhancements and Bug Fixes

Fault Tree Analysis (FTA) Upgrades

User Value: Delivers a more powerful, flexible, and performance-optimized FTA environment, giving Safety Engineers greater control over tree construction, gate logic, and analysis workflows for both simple and highly complex systems.

Custom FTA

User Value: Enables rapid, unconstrained fault tree construction directly within the FTA editor, with no model dependency required as a starting point.

- Introduced the ability to begin from a blank top event, allowing fully custom fault trees to be built independently of any predefined model.
- Enabled inline editing of event name, event ID/code, and item name directly on the editor canvas, eliminating unnecessary navigation interruptions.
- Enhanced the Add button to create new blank events without scrolling away from the parent, supporting rapid multi-child entry without loss of context.
- Redesigned context menus and toolbar to surface quick options for model-based events, custom events, common mode events, model-based trees, and transfer trees, alongside replace/clear and insert above/below controls for intuitive tree restructuring.
- Implemented export and import capability for custom FTA events, supporting reuse and portability across projects.
- Improved accessibility of the Custom Event Library (formerly "Add Custom Event") from the Fault Tree Builder.

Expanded FTA Gate Logic

User Value: Supports modelling of systems with complex failure behavior with new gate types.

- Introduced NOR, NAND, XOR, NOT, and Inhibit gates alongside the existing AND, OR, and K-of-N gates, broadening the range of failure logic that can be accurately represented.
- All new gate types include p(f) evaluation, minimum cutset generation, cutset tree views, and full inclusion in reporting and export workflows ensuring no loss of analytical depth.
- Updated the toolbar to prominently display the most frequently used gates, with less common gate types consolidated into a grouped toolbar to reduce visual clutter and improve workflow efficiency.
- Updated context menu grouping for a more consistent and intuitive user experience.
- Added a new project-level preference to enable or disable intermediate p(f) calculations, improving performance for large and complex trees.
- Introduced configurable P(f) display format, allowing users to switch between scientific notation and decimal notation up to a configurable threshold, set per project.
- Delivered significant performance improvements to P(f) calculations across all FTA analyses.

General FTA Enhancements

User Value: Improves navigation, traceability, and usability across all FTA workflows, including for large and complex trees.

FTA Folders and Categories

- Enhanced the FTA landing page to support user-defined folders for grouping and organizing analyses.
- Introduced editable names, optional descriptions, created and modified timestamps, nested sub-categories, and drag-and-drop reordering for flexible FTA organization.

Transfer Gate Enhancements

- Enhanced the display of FTAs linked by Transfer In gates, now shown as hierarchical children in the FTA overview for improved traceability across tree structures.

Expand/Collapse Branches

- Implemented expand & collapse branch controls to allow focused navigation of large trees.
- Introduced an Expand All option to quickly restore a full tree view when needed.

Cutset View Improvements

- Introduced dedicated cutset views, allowing users to display either a cutset-only tree with relevant events, or the full tree with highlighted branches that propagate failure to the top event.
- Improved laggy search, sorting, and scrolling behavior in the minimum cutset view for large cutset counts (e.g., ~10,000 cutsets), preventing application unresponsiveness.

Event Codes

- Improved event code fields to support longer strings and special characters.

Additional Enhancements

- Added the ability to select any intermediate event and generate a new, independent FTA with that event as the top event, copying all child events and gates into the new tree.
- Enhanced the Event List search to support filtering by ID, logic, event type, item, and event name.
- Improved the additional information panel to automatically resize based on the number of selected parameters displayed.

Model-based RCM (MBRCM) Enhancements

User Value: Improves mission profile integration, P-to-F task logic accuracy, audit traceability, and overall workflow reliability in MBRCM.

- Introduced Mission Profile groups in MBRCM, displaying time profile graphs, duration, mission cycles, group cycles, phases, and conditions for all mission profiles within the group.
- Improved Mission Profile changes to appear in MBRCM only after explicitly updating the analysis, preventing unintended mid-session disruptions.
- Enhanced view in Functional Failure Analysis to collapse failure modes by default for cleaner navigation.
- Incorporated mission cycles in maintainability metrics for more accurate maintainability calculations.
- Enabled selected Preferences in RCM Summary to retain between sessions.
- Improved audit logging and traceability by capturing all maintenance action edits
- Extended report to include technical feasibility assessments of the tasks.

API Enhancements

User Value: Extends data exchange capabilities and improves performance and usability for API-driven integrations.

New API Version v2.0.0

- Supports import, sync, and export of the Effectiveness Factor attribute.
- Supports export of revised reliability and maintainability metrics.
- Supports import, sync, and export of MTTF and failure rate values in accordance with GEIA-STD-0007C.
- Supports import, sync and export of part features, characteristics, environments, synonym.
- groupRatio in missionProfileGroups now correctly reports the percentage contribution of the profile.

Reliability Block Diagram and Analysis Viewer

User Value: Improves performance, scalability, and usability of reliability analysis for complex systems.

- Improved performance for reliability calculations through better queue director handling.
- Removed the 16-item limit on K/N Redundancy groups.
- Improved progress monitor for reliability calculations requiring extended computation time.
- Updated Standby Redundancy group messaging for better clarity.
- Improved the UI in RBD analysis viewer for readability of the reliability and maintainability parameters.

Minor Enhancements and Bug Fixes

- Improved project save performance having more than 500 items.
- Added ability to multi-select items when importing from another MADE model.
- Added a new Category column in Control Measures to group selected control measures under their respective categories, replacing the previous flat list and improving organizational clarity.
- Resolved inability to create new user-defined Fuzzy Criticality Profiles.
- Resolved failure to capture revised software control values when the initial value was zero.
- Introduced maintenance action excel imports to support custom maintenance locations.
- Corrected scenarios where maintenance tasks were not originating from the Task Evaluation decision tree.
- Corrected localization issues across MBRCM, Failure Rate Prediction, and System Information reports.
- Resolved Diagnostic Analysis Sensor Set Excel exports not saving to the user-selected path.
- Resolved missing units for duration of operation and baseline MTTR and MMT values in RBD report.
- Resolved Basic Maintenance Actions not appearing in MIL-STD-1629A Maintainability Combined and FMECA Maintainability Information reports.

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