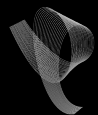# PHM Technology

Decisions better made

MADE

MAINTENANCE AWARE DESIGN ECOSYSTEM

MADE 3.8.7

Release Notes

MADE 3.8.7

The MADE 3.8.7 release theme emphasises the importance of safety in aerospace applications and highlights the benefits of using the software to perform more accurate and comprehensive safety analysis. It also emphasises the importance of an enhanced approach to control measures and risk analysis to ensure that safety risks are identified and addressed effectively, and in a more traceable manner in all engineering safety/risk fields.

Key Features include:

- Safety and Risk
    - Upgraded Mission Profile Definition (MPD)
    - Upgraded Functional Hazard Assessment (FHA)
    - Upgraded MIL-STD-882E and ARP4761 Criticality Profiles
    - New Model-based Control Measures
- Diagnostic Analysis and Sensor Set Analysis
    - Sensor Set Analysis Enhancements
    - Sensor Library Enhancements
    - Testability Cost Verification Upgrades
- Integration
    - Additional Integration APIs
- Customer Requests
- Zentitle Licensing Upgrade
- Bug Fixes

Release Notes:

- Charting
    - Ability to generate charts using Criticality Profile threshold settings.
- Control Measures
    - Updated existing control measure concepts and added accessibility of new Control Measure functionality.
    - Added ability to easily cut/copy/paste Control Measure concepts when editing.
    - Added Barrier Criticality Model feature to better visualize and edit Control Measures applied to failure concepts.
    - Added ability to apply sets of Control Measures (Control Measure Sets) to failure concepts.
    - Added ability to quickly assign Control Measure category and subcategory through the editor.
    - Added ability to manage Control Measures taxonomy across multiple projects.
    - Added ability to individually manage Control Measure categories, subcategories, and descriptions.
    - Added new Control Measures taxonomy editor capability.
    - Added ability to aggregate effects of multiple applied Control Measures.
    - Enhanced failure response pathing to consider paths with and without Control Measures.
    - Added compatibility upgrade for legacy Control Measures in existing MADE projects.
    - Added compatibility upgrade for custom Control Measures in existing MADE projects.
    - Added ability to automatically establish Control Measure links for legacy models with existing Control Measures.

- o Added Control Measure Classes to better categorize different types of Control Measures.
- o Added ability to easily edit Control Measures from within Control Measure Sets
- o Upgrade to legacy Compensating Provisions taxonomy.
- o Upgraded icons and visual elements for Control Measures.
- o Added additional columns to Template FMECA reports to show initial and revised criticality metrics to reflect applied Control Measures.
- o Added additional columns to Custom FMECA reports to show initial and revised criticality metrics to reflect applied Control Measures.
- o Added ability for applied Control Measures and Control Measure Sets to apply revised criticality metrics for failure concepts.
- Critical Item Analysis
  - o Upgraded Critical Items Analysis to evaluate critical items based on Severity as well as combinations of threshold types.
- Criticality
  - o Added new MIL-STD-882E RAC Codes and Software Safety Criticality functionality to MIL-STD-882E Criticality Profile to allow Software Safety Criticality assessment compliant to standard.
  - o Upgraded the MIL-STD-882E Template FMECA to display RAC codes when assessing risk.
  - o Updated Criticality viewers to reflect upgrade to MIL-STD-882E Criticality Profile.
  - o Added new MIL-STD-882E Software Criticality Index parameters and SCC matrix to allow for Software Safety Criticality assessment.
  - o Updated CR Editor to reflect upgrades to MIL-STD-882E Criticality Profile.
  - o Added MIL-STD-882E compatibility updates for legacy models when upgrading to new release version.
- Diagnostic Analysis
  - o Added ability to customize which metrics are used during metric optimization workflow in Diagnostic Analysis.
  - o Upgraded visualization options of metric optimization tab in Diagnostic Analysis.
  - o Updated language, terminology, naming, and labelling used in Diagnostic Analysis to better reflect functionality.
  - o Added ability to calculate detection metrics for each ambiguity group in Diagnostic Analysis.
  - o Added ability to filter using Detection metric during optimization workflow in Diagnostic Analysis.
  - o Updated Sensor Set Report to reflect upgrades to sensor set analysis.
- Fault Tree Analysis (FTA)
  - o Added QoL enhancements for generating Symptom/Symptom Group Fault Tree Analysis (FTA).
  - o Updated terminology to reflect changes to Functional Hazard Analysis (FHA).
- Functional Hazard Analysis (FHA)
  - o Added ability to view and edit various Functional Hazard Analysis (FHA) function item properties through the Properties Viewer.
  - o Added compatibility upgrade for legacy Functional Hazard Analysis (FHA) models.
  - o Added ability to update the logic for revised criticality assessment in Functional Hazard Analysis (FHA).
  - o Upgraded the ARP4761 Criticality Profile to reflect changes to Functional Hazard Analysis (FHA).
  - o New Functions List added to Functional Hazard Analysis (FHA) to summarize and quickly edit parameters in the analysis workflow.

- o Updated Functional Failure tab to reflect changes to Functional Hazard Analysis (FHA).
- o Relocated FHA Failure Condition details section to the Properties window.
- o Added ability to create Multiple Failure Events in Functional Hazard Analysis (FHA).
- o Added ability to associate Functional Hazard Analysis (FHA) Failure Conditions to multiple aircraft or system-level functions.
- o Added ability to create and associate Assumptions to Functional Hazard Analysis (FHA).
- o Added ability to create and associate Mission Events, Conditions, and Specialized Mission Phases to Functional Hazard Analysis (FHA).
- o Added ability to create and associate Crew Awareness to Functional Hazard Analysis (FHA) Failure Conditions.
- o Added ability to create and associate Failure Effect to Functional Hazard Analysis (FHA) Failure Conditions.
- o New Resource Manager functionality added to manage, edit, and reuse Functional Hazard Analysis (FHA) objects.
- o Added ability to create and associate Safety Criteria to Functional Hazard Analysis (FHA) Failure Conditions.
- o Added ability to apply Control Measures to Functional Hazard Analysis (FHA) Failure Conditions.
- o New revised criticality assessment capability for Functional Hazard Analysis (FHA) Failure Conditions.
- o Upgrade and revision of Verification Actions to Substantiation Actions in Functional Hazard Analysis (FHA).
- o Updated Failure Conditions table to reflect changes to Functional Hazard Analysis (FHA).
- o Ability for Links to persist when copying Functional Hazard Analysis (FHA) Functions.
- o Upgrade to Functional Hazard Analysis (FHA) Report and Report Wizard.
- o Added new Mission Event and Condition objects in Requirements Verification Tool (RVT).
- o Added ability to set custom ID for Functional Hazard Analysis (FHA) Functions and Functional Failures.
- o Added ability to create and associate Coverage Justification and Level to Functional Hazard Analysis (FHA) Functions.
- o Added help/information icons to accommodate upgraded FHA workflow.
- o Added ability to quickly cut/copy/paste fields through the new FHA failure condition table.
- Help Content
  - o The MADE training guides and manuals have now been updated for version 3.8.7.
  - o The MADE training PowerPoint has now been updated for version 3.8.7.
  - o The MADE workflows have now been updated for version 3.8.7.
- Import/Sync
  - o Added model function/functional flow properties import through API.
  - o Added model function/functional flow properties synchronization through API.
  - o Added additional FHA properties for import through API.
- Export
  - o Added new FHA properties data export through API.
  - o Added Maintenance data export through API.
  - o Added Reliability Block Diagram (RBD) model export through API.
  - o Added additional Mission Profile Definitions (MPD) properties export through API.
  - o Added additional PHM Analysis export through API.

- o Added Functional Fault Tree Analysis (FTA) export through API.
  - o Added RBD Analysis viewer export through API.
  - o Added additional FMECA data export through API.
  - o Added Failure Concepts export through API.
  - o Added Technical Budgeting parameters export through API.
  - o Added Reliability Allocation Analysis export through API.
  - o Added Hardware Fault Tree Analysis (HW FTA) export through API.
- Licensing
  - o New Zentitle licensing feature to enable offline mode, allowing users to be able to use the new licensing setup in environments without internet connectivity.
- Mission Profile Definition (MPD)
  - o Added ability to create and associate Functional Hazard Analysis (FHA) Specialized Phases to Mission Profile Definitions (MPD).
  - o New Functional Hazard Analysis (FHA) Mission Events tab added to Mission Profile Definitions (MPD).
  - o New Functional Hazard Analysis (FHA) Mission Conditions tab added to Mission Profile Definitions (MPD).
- Reliability / Availability
  - o Updated System Administrative and Logistical Downtime (MALDT) calculation to comply with international standard.
- Sensor Library / PHM
  - o Upgraded and added additional sensor properties to enable Testability workflows.
  - o Updated Propagate All dialogue language and configuration options to better communicate functionality.
  - o Updated Sensor Library to better visualize and edit sensor attributes.
- Palette/Library
  - o Added ability to save Test Points when saving items to Palette/Library.