Andromeda
A new OPEN PSA Workbench

Friedlhuber T.

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1. What is Andromeda

2. Andromeda - current Applications

3. Andromeda core concepts

4. OPSAMEF Challenges
Andromeda Objectives

- Application Framework
- Reducing complexity of models
- Reducing complexity of applications
- Open, Extensible Application Architecture
- Connecting applications
- Connecting models
- Simplify to develop new modelling applications

PSA related goals:
→ Understanding risk models
→ Improvement of qualitative risk assessment
Application philosophy

- Each application is dedicated to fulfill a certain task
- Applications are kept simple
- Applications are interconnected

How to connect new applications?

Consistency Checker
Model Editor
Model Comparator
Model Converter
Model Viewer
<FUTURE APP>
Modelling philosophy

- Models have often dependencies between each other
- Andromeda respects having an interconnected model world
Applications operate together on models

- Models are shared between applications
- Models are no longer treated independently from each other
Topic

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Model Viewer
Model Editor

Create Gate

- Name: new_Gate
- Label:
- Parent: Fault_Tree %COEF_B12B3

Attributes
- name: %COEF_B31
- label: Coefficient of the substitute

Found elements:
- Name
  - %COEF_A1A2A3
  - %COEF_A1A2A3_2
  - %COEF_ABCD-1
  - %COEF_ABCD-2
  - %COEF_B12B3
  - %COEF_B12B3_2
  - %COEF_B12B3R4
  - %COEF_CAICB2
  - %COEF_CAICB2_2
  - %COEF_D1D2
  - %COEF_D1D2_2
  - %COEF_EF
  - %COEF_EF-2
  - %COEF_RH_A
  - %COEF_RH_B
  - %COEF_RH_C
  - %COEF_RH_D
  - FLOOP_AD
  - FLOOP_EF
  - FLSBD_D
  - FLSBD_EF
  - FLUSH_AD
  - FLUSH_EF

Image: Model Editor interface with a diagram showing various elements and attributes.
Consistency Checker

Model: /home/friedlu/models/EPS_EPR_BK_V_JANVIER.opsamef

Type: <ALL> Name: Sort: Element Type: Limit: 100:

- Basic_Event X3PORTES_CF_DS MAJOR Parameter Reference: X3CLAPET_CF_DS: Unresolved Reference
- Basic_Event X3CLAPET_CF_DS MAJOR Parameter Reference: X3PORTES_CF_DS: Unresolved Reference
- Basic_Event X3CLAPET_CF_DS MAJOR Parameter Reference: X3PORTES_CF_DS: Unresolved Reference
- Basic_Event X3CLAPET_CF_DS MAJOR Parameter Reference: XCLAPET_CF_DS: Unresolved Reference
- Basic_Event XFT09_NEXT_LOC_FAIOP MAJOR Parameter Reference: XFT09_NEXT_LOC_FAIOP: Unresolved Reference
Variant Management

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Modular PSA

Modular PSA splits model into pieces (modules)

Each piece is treated rather independently
Connecting modules

Related model components (the modules) can be linked together

Model gets reduced to a less complex one:
Connecting various models

Idea can be extended to connect modules of various models
Extension points

- Andromeda is based totally on plugins
- Each application can be extended
- Interconnection between applications done by adding new extension points
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What are the current challenges of integrating OPSAMEF in Andromeda?

Format is often too complicated:
- Gate definitions
- Event Tree formula collection
- Non-Existence of Alternatives, Exchange Events, Mutual Exclusions, Delete Terms
- Substitutions are not intuitive

But on the other hand compatibility needed!

Goal: Find right compromise, only provide what is really needed!