



Avionics & Simulation Products

# Modeling Working Group

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# Avionics & Simulation Products

- Hw/Sw avionics
- DO-178 / ED-12
- Experimental flight simulators
- Software packages for training flight simulators
- A few ground applications
- Technological / methodological experts
- About 400 developers



# Topics 1

- Use modeling for system engineering, equipment definition and application specification and design
- UML, SysML, Ecore, Structured Analysis Modeling, Abstract User Interface language
- Handling requirements (textual requirements and model fragments)
- Scripts on models
- Support seamless connections between development stages
- Generate test plans and proof obligation from models to validate partial / complete products
- Simulate behaviors (graphical animation, but also automated headless non-regression tests)

# Topics 2

- Prove structural properties on any kind of model using OCL
- Prove behavioral safety / functional / operational properties of models
- Connect modeling tools to tracking systems
- Propose a seamless migration from classical development process to Model based process
- Improve document generation framework
- Prepare qualification kits when required
- Prepare core components for long term support: technical infrastructure, developer / user documentation, etc.

# 2012

- Contribute all valuable TOPCASED components to Eclipse / Polarsys:
  - OCL checker
  - Gendoc 2
  - Scripting
  - Metrics
  - Textual Requirements editor in models
  - Various modelers / languages (SAM, AUI, obsolete UML / SysML modelers)
- Go on with our current effort on MDT Papyrus (SysML and UML)
- Improve Gendoc 2 (useability, better HTML support, maturation)
- Generation of proof obligations from UML / SysML / SAM to FramaC (C code)

# Beyond 2012

- Converge with ReqIF / RMF and improve requirement management tools
- Integration of behavioral provers
- Improve generic/specific simulators (UI, debug capability, maturation)
- Integrate Gendoc2 script editor (aka M2M Acceleo) within LibreOffice / OpenOffice / Microsoft Word
- Use UML/MARTE for dynamic design
- Qualify M2M / M2T transformations (vs DO178)
- Traceability and M2M / M2T transformations
- Improve requirement tools to compete with DOORS features



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