Sirius

Your custom modeling environment made easy, at last!

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EclipseCon 2013
Sirius helps create specific multi-view workbenches based on diagram, table and tree modeling editors

- Provides the **specification tools** to describe, test, and distribute graphical modeling workbenches on top of the Eclipse platform, *with little technical knowledge*

- Provides the associated **runtime**

Currently in the Project Proposal Phase for the Eclipse Modeling Project
**Rationale: Thales Original Needs**

- **Thales previous experiences with UML Profiling**
  - Poor adoption by system engineers
  - Metamodels constrained by UML concepts
  - Representations constrained by existing UML diagrams

- **Need for DSLs**
  - More freedom in representations
  - Heavier and more technical (GMF) developments
  - Originally 2 or 3 foreseen modeling tools

- **Separation workbench / business concerns**
  - Generic infrastructure for model management and representations
  - Focus on business added-value
  - Capitalization
History

**2007:** First Obeo/Thales prototype to validate the concepts

**2008:** Thales UML/SysML inspired modeling tool

**2009-Present:** Robustness

- **2008:** Specification and development of Sirius foundations
- **2009:** First operational pilot projects, launch of Sirius-based Obeo Designer product
Creation of a Modeling Workbench with Sirius

Representation DSL
- Diagrams (Layers, Filters, Conditional Styles), Tables, Editors

Business Specific Editors

Business Tooling
- Model analysis tools
- Model transformation tools

Model Lifecycle Management

Diagram, Table and Tree Editors

Validation Rules

Thales Validation Rules

Thales Engineering Meta-model

Thales Engineering Methodology

Thales Engineering Modeling Workbench

Thales Engineering Methodology

Thales Validation Rules

Thales Diagrams and Tables Descriptions (30+)
<table>
<thead>
<tr>
<th>Category</th>
<th>Regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avionic Systems for Airbus, Boeing, Dassault</td>
<td>France</td>
</tr>
<tr>
<td>Security</td>
<td>France</td>
</tr>
<tr>
<td>Space</td>
<td>France, Italy</td>
</tr>
<tr>
<td>Transportation</td>
<td>Canada, Germany</td>
</tr>
<tr>
<td>Ground and Air Radars</td>
<td>France, The Nederlands</td>
</tr>
<tr>
<td>Air Traffic Control</td>
<td>Australia, France</td>
</tr>
</tbody>
</table>

- Modeling workbenches
- Operational or pilot projects
- Daily users: 400
- Diagrams in some models
- Nodes in biggest diagrams: 1000+
### Thales Flagship Modeling Workbench

#### Live demonstration

<table>
<thead>
<tr>
<th>Task</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search &amp; Rescue</td>
<td></td>
</tr>
<tr>
<td>- Route Aircraft towards Distress Ship</td>
<td>X</td>
</tr>
<tr>
<td>- Manage Rescue Means</td>
<td></td>
</tr>
<tr>
<td>- Select Ships to reroute</td>
<td>X</td>
</tr>
<tr>
<td>- Deliver Rescue Raft</td>
<td></td>
</tr>
<tr>
<td>- Assess Situation</td>
<td>X</td>
</tr>
<tr>
<td>- Localize &amp; identify ships on zone</td>
<td></td>
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<tr>
<td>- Determine Position of Distress Ship</td>
<td>X</td>
</tr>
<tr>
<td>- Manage Sensors</td>
<td></td>
</tr>
<tr>
<td>- Manage Radar</td>
<td>X</td>
</tr>
<tr>
<td>- Acquire radar tracks</td>
<td>X</td>
</tr>
<tr>
<td>- Acquire radar image</td>
<td>X</td>
</tr>
<tr>
<td>- Acquire FLIR images</td>
<td>X</td>
</tr>
<tr>
<td>- Drive Navigation</td>
<td></td>
</tr>
<tr>
<td>- Send Goal Position to Navigation</td>
<td>X</td>
</tr>
<tr>
<td>- Send Flight Plan to Navigation</td>
<td></td>
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<tr>
<td>- Communicate with Ships</td>
<td></td>
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<tr>
<td>- Build Search Strategy</td>
<td>X</td>
</tr>
<tr>
<td>- Provide Meteo &amp; Sea &amp; Ship Data</td>
<td>X</td>
</tr>
<tr>
<td>- Compute appropriate Search Patterns</td>
<td>X</td>
</tr>
<tr>
<td>- Compute Presence Likelihood Zone</td>
<td>X</td>
</tr>
<tr>
<td>- Build Mission Report</td>
<td></td>
</tr>
<tr>
<td>- Interact with Ships on zone to find ship in distress</td>
<td>X</td>
</tr>
<tr>
<td>- Determine Position and steer Aircraft</td>
<td></td>
</tr>
<tr>
<td>- Deliver Radar situation</td>
<td></td>
</tr>
<tr>
<td>- Deliver FLIR images</td>
<td></td>
</tr>
<tr>
<td>- Build &amp; coordinate Tactical Situation</td>
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</tr>
</tbody>
</table>

![Live demonstration diagram](image-url)
Alstom Safety Analysis
On-the-field Maturity Achievement

4 years of concrete operational feedback

- The rapid adoption has created **strong expectations**
- Continuous intensification of development efforts to **sustain the deployment growth**
- Significant focus on **automated validation** and **regression tests**

Open Source is the next step
Passed Technical Obstacles

Foundations
- Transactions
- Fragmentation in SCM
- UML2-like sequence diagrams

Ergonomics
- Automated layouts
- Stability of layouts
- Tweaks of GMF behaviors

Performance
- Successive performance improvement plans
- Focused diagrams
Getting Started with Sirius

Workbench Configuration

Designer Usage

Live Demonstration
Sirius Project Roadmap (2013-2014)

- **March**: Project Submission
- **April**: Code submission and IP review
- **September**: First builds on Eclipse infrastructure
- **November**: v0.9 Release
- **June**: v1.0 Release with Eclipse Luna
http://www.eclipse.org/proposals/modeling.sirius

Other interested parties?

Feel free to contact us!!

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Modeling Symposium in a few hours

Talk on Thursday: Collaborative modeling applied to avionic design: Give wings to your team!