KIELER Pre-Release 0.6.0

KIELER Rich Client Application 0.6.0

- Official Project Website
- Built on Eclipse 3.7 "Indigo"

Release Notes

We are happy to provide the sixth release of the **Kiel Integrated Environment for Layout Eclipse Rich Client**! It is a framework for enhanced user interaction in graphical modeling basing on the Eclipse platform. This being a pre-release provides some basic core contributions as listed below. The full user experience will follow in upcoming releases. For known shortcomings and problems also see below.

Installation Notes

You can either download the Rich Client Application (RCA) which comes bundled with all required Eclipse infrastructure, or you can install the single KIELER features via an Update Site on top of your own Eclipse installation (Eclipse version 3.7 ("Indigo") required).

- See KIELER project website for download details.
- You'll require a Java Runtime Environment >= version 1.5.
- Nice graph layouts can be obtained by GraphViz. KIELER makes use of a GraphViz installation on your machine, so you probably want to install it.

Provided Features

This is a very brief list of included features.

Since 0.6.0

New Features:

- Migration to Eclipse Indigo (3.7) and Xtext 2.0
- KWebS: Web service for automatic layout
    - Includes an Eclipse client that enables remotely computed layouts for KIML. In this way no local installation of layout algorithms is required.
    - Offers a WSDL based web service and a jETI service (Java Electronic Tool Integration, developed by the Programming Systems Chair, Technische Universität Dortmund).
    - Includes a simple command-line tool for processing graphs in different formats: see this page
- KLOTS: KIELER Lego On-line Testing System
    - Java editor for programming the Lego Mindstorms controller, including tools to compile and upload code.
    - Support for SJ (Synchronous Java), including program execution tracing.
    - Additional Licenses:
        - Apache License, Version 2.0 http://www.apache.org/licenses/LICENSE-2.0
        - GNU Lesser General Public License, Version 2.1 http://www.gnu.org/licenses/lgpl-2.1.html
        - Mozilla Public License, Version 1.0 http://www.mozilla.org/MPL/MPL-1.0.html
- KLay Force layout algorithm: force-based layouts after Eades and Fruchterman & Reingold.

Since 0.5.0

New features:

- Import and export of different graph formats: GML, OGML, GraphML, Dot, KGraph
- Esterel Support (KIELER Esterel to SyncCharts, KIES)
    - Esterel Editor, Parser, Serializer
    - Stepwise transformation of Esterel programs to SyncCharts models
- Ptolemy Support
    - Improved Ptolemy to KIELER Actor-Oriented Model (KAOM) import
    - Textual format for KAOM
    - Example models provided
- UML State Machine Support UMLSim
    - Simulation, Verification by Transformation to MAUDE, Visualization via Papyrus Editor
- Example Management, providing easy access to KIELER model examples
- Manual Focus&Context for SyncCharts in View Management
- KIELER Layouters (KLay)

Improvements:

- New implementation of the OGDFintegration
    - Better error handling
    - New Layout Algorithms
- Reorganization of Project structure
    - Providing complete Eclipse Features (less than before)
    - Providing Eclipse project sets for developers
- Layout Annotations (SyncCharts/KAOM)
    - In textual view or Annotations property tab (in addition to Layout View)

- Layout algorithm selection dialog

No longer supported Features (use previous releases):

- KIELER Reactive Processor tools (KReP)

Since 0.4.0

- Hybrid Graphical / Textual SyncCharts modeling (KITS View)
- Kieler Example Management (KEX) (New / Import Wizard)
- Kieler Visualization of Data (KViD) for KAOM
- Custom Model Renderings (KARMA)
- New implementation of View Management (KIVi)
- New implementation of layout options management for KIML
  Fixes
- SC code generation (fixes)

Since 0.3.1

- Added missing MinGW libraries for Win32 OGDF layouter fragment

Since 0.3

- Migration to Eclipse 3.6 ("Helios")

- Kieler Actor Oriented Modeling Editor (KAOM), (old Dataflow editor has been removed)
- Graphs Editor for Layout Algorithm Engineering
- Interface for graph analysis (GRANA)
- SyncCharts Codegeneration into Synchronous C (SC)
- SyncCharts Simulation with SC
- New version of the Open Graph Drawing Framework
    - More layout algorithms supported
    - Better error handling due to new JNI strategy
    - Support for Solaris (next to Windows, Linux, Mac)
- Layout Support for Class diagrams
    - EMF Ecore Diagram Editor (also included in KIELER RCA)
    - UML2Tools Class Diagram, Papyrus MDT Class Diagram Editor Support
- Experimental Focus&Context for SyncCharts Simulation
  Fixes
- Validation of SyncCharts can be configured through toolbar
- SyncCharts Metamodel update 0.3
- SyncCharts KlePto fix about Ptolemy SR models

Since 0.2

- Automating Execution in the KIELER Execution Manager
- Experimental Interface to the Open Graph Drawing Framework (OGDF) for more sophisticated layout algorithms
- UML2 Support for KSBASE and Layout
- SyncCharts to Esterel compilation
- Kiel Reactive Processors (KReP) connection
- Source bundles are available (through update site)
  Fixes
- ThinKCharts Editor Copy / Paste works
- Ecore Tools Diagram Editor added to KIELER RCA
- Quartz Editor removed (deprecated)
- Many smaller bugs fixed

Since 0.1

- Graphical Editors
    - Thin Kieler SyncCharts Editor (ThinKCharts)
    - Simple Dataflow Editor
- Textual Editors
    - Esterel
    - Quartz
- Infrastructure for Meta Layout (KIML)
- Execution Manager (KIEM)
- SyncCharts Simulation using Ptolemy II (KlePto)
- Structure-Based Editing of SyncCharts (KSBase)
- Environment Visualization (KEV)

Quickstart

Start with an Example

The 0.6 release provides the example management KEX. You can start with an example either by

- Select "Samples" on the Welcome page and select either the
  - SyncCharts Quickstart Example or the
  - KAOM Quickstart Example
  - -> a new project will be created, hosting a simple example model for the respective language
- Use the New- or Import-Wizard to select one example of a list of available ones
  - File -> New -> Example -> KIELER
  - Choose a category (e.g. SyncCharts or KAOM) and select some examples
  - Finish

Start with an empty Workspace

When you start KIELER, you will probably start a new empty workspace.

- If it is not already there, open the **KIELER Perspective**! It opens the most important views that KIELER adds to Eclipse and adds some shortcuts to the New-Menu.
  - Window -> Open Perspective -> Other... -> KIELER Modeling
- Create a new empty simple project.
  - File -> New -> Project

In your new project you can create new graphical or textual models. Here is some possible use case:

- Create a new SyncCharts diagram.
  - File -> New... -> SyncCharts Diagram
- Create a new initial SyncChart
  - Select empty canvas -> KIELER main menu -> Add Default
- Edit the diagram
  - Select existing graphical objects in the diagram, choose editing operations from the KIELER main menu or the context menu (right-click). You won't need the palette. Layout is always performed automatically.
- Trigger automatic layout
  - Use the corresponding little button in the toolbar (or Ctrl-R L)
  - Use the *Layout* view to customize the automatic layout: choose different layout algorithms---even within the same diagram for different hierarchical nodes---or configure specific options.
- Save the SyncChart to automatically validate it.
- Simulate the SyncChart with the *Execution Manager* view
  - From the dropdown list select the matching schedule *synccharts*. This will setup KIEM for SyncCharts Simulation.
  - Press the play button.
  - Use the Execution Manager view and the *Data Table* view to interact with the model (i.e. see outputs and enter inputs).
- Checkout the key-bindings! Key-bindings help you to be faster with KIELER. All KIELER bindings have the Sequence *Ctrl+R <key>*, where <key> is some additional key that is pressed in sequence with Ctrl+R (CMD+R on Mac).
  - Press only Ctrl+R and wait to get a list shown with all possible key-bindings.
  - Maybe most frequently used are *Ctrl+R L* for autolayout and *Ctrl+R Z* for zoom to fit.

Known Problems and Limitations

- The performance of SyncCharts simulation visualization with focus & context is rather bad on some platforms. This may cause problems when the step size is set to a small value (< 500 ms). Please deactivate the SyncCharts visualization component if you wish a faster simulation.
- Currently there is no full-blown user documentation integrated. Find some material online:
  - Source code as well as Javadoc API is available. See website.

Bug Reports, Comments

We're working hard to make the graphical modeling user experience as convenient as possible. However, bugs can still remain in the code and some things might not be as you would expect them. Please don't hesitate to send in bug reports or give other comments like feature requests.

Send bug reports to kieler@…, please. For news or general questions subscribe to the rt-kieler mailing list.