

# First steps with R + Eclipse

WZUR 2009

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# Goals

- Why Eclipse is not just another GUI?
- What are the main features of Eclipse?
- How can it help me with R?
  - R code editing and running
  - R CMD automation
  - C cooperation
  - Documentation editing
  - Package development
  - Report development (only mentioned)

# Introduction

- R core team is mostly concentrated in language development, but not GUI tools, while...
- ...small community projects are supporting users with wide range of helpful tools like JGR, R commander, Rexcel, ESS, Rpad, Tinn-R, RstatServer or Sci-Views
- In the same time huge open source projects are mastering IDE solutions into cutting-edge level, and Eclipse is a great example

# What is Eclipse?

- **Software Development Environment (SDE)**
  - Java based environment for development of rich client applications, with strong support for IDE development, but not only
- **Integrated Development Environment (IDE),**
  - environment used mostly by Java developers
- but also IDE for PHP, C/C++, BIRT, Pulsar and standalone applications (like BIRT Report Designer)

# Eclipse project

- Initialized by IBM in 2001, then maintained by Eclipse Foundation as open source project, with support from such companies as IBM, Oracle, SAP, Nokia and others
- Released under modified Common Public License, which gives no restrictions to use it in business projects
- *“If I have seen further it is only by standing on the shoulders of giants.” Isaac Newton*

# Installation

- R, JRE and rJava
- *[www.eclipse.org/downloads](http://www.eclipse.org/downloads)*
- choosing version and package
  - eclipse-platform-3.4.2-win32.zip
- fully portable (no registry keys, Windows and Linux)
- plug-in uploading
  - StatET (<http://download.walware.de/eclipse-3.4>)
  - JDT (necessary, installed automatically with StatET)
  - C/C++DT (optional, but helpful with C functions)
- External tools supported in this configuration
  - Roxygen
  - Rtools
  - C compiler

# Overview of IDE

- project management - workspace, projects, resources, linked resources
- views & perspectives
- markers – tasks, problems, bookmarks
- code outline and navigation
- local history, difference comparison tools & quick diff
- extensive search with regular expression
- dedicated run configurations and external tools
- templates, auto completing, code tiding, brackets
- full CVS support

# StatET

- Eclipse plug-in developed by Stephan Wahlbrink (Germany)
- open source, no limitations for commercial use
- more at [www.waware.de/goto/statet](http://www.waware.de/goto/statet)
- enrich Eclipse IDE with:
  - R script editor with syntax highlighting, bracket matching, intelligent and structural selection, folding, automated documenting (function and classes), code navigation, templates, smart insert, simple re-factorization
  - integrated, neat R consoles with several submit modes, history, queue management, hyperlinks to errors and rich input line
  - Rd editor with Roxygen support
  - Sweave support both with code editing and document processing
  - connection with external R session (Windows)
  - gate for R CMD launch and package compilation



# Example

- import existing package into workspace
- add new function in C
  - compile
- add wrapper in R
  - test it
- generate automated documentation
- edit documentation
- check and compile package
- install package

# More...

- *“A guide to Eclipse and the R plug-in StatET” Longhow Lam*
- Eclipse help files (better than any on-line tutorial)
- *“Making R Packages Under Windows:” P. Rossi*
- *Roxygen Vignette, Peter Danenberg*

## **Additional topics :**

- StatET Sweave Plug-in
- data modeling project and SQL plug-in's
  - Eclipse environment for data warehousing development and administration (or just data manipulation)
- Business Intelligence and Reporting Tools
  - Java API for data access, reporting and charting as well as standalone report designer and generator

# Thank you!

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