

History of Changes

Table of contents

1 Version 1.4.7 (December 2007).....	3
1.1 environment.....	3
2 Version 1.4.6 (February 2007).....	3
2.1 environment.....	3
2.2 models.....	4
3 Version 1.4.5 (September 2006).....	4
3.1 environment.....	4
4 Version 1.4.4 (August 2006).....	5
4.1 environment.....	5
5 Version 1.4.3 (May 2006).....	5
5.1 environment.....	5
6 Version 1.4.2 (February 2006).....	5
6.1 commands.....	5
6.2 environment.....	6
7 Version 1.4.1 (January 2006).....	6
7.1 environment.....	6
8 Version 1.4.0 (August 2005).....	6
8.1 commands.....	6
8.2 environment.....	7
9 Version 1.3.4 (February 2005).....	7
9.1 commands.....	7
9.2 environment.....	8
9.3 models.....	8
10 Version 1.3.3 (October 2004).....	8

10.1 environment.....	8
10.2 models.....	8
11 Version 1.3.2 (September 2004).....	8
11.1 environment.....	9
11.2 models.....	9
12 Version 1.3.1 (June 2004).....	9
12.1 environment.....	9
12.2 models.....	9
13 Version 1.3 (May 2004).....	9
13.1 environment.....	9
13.2 models.....	10
14 Version 1.2 (Nov 2003).....	10
14.1 commands.....	10
14.2 environment.....	10
15 Version 1.1 (Aug 2000).....	10
15.1 commands.....	10
15.2 environment.....	11
15.3 models.....	11
16 Version 1.0.2 (Sep 1999).....	12
16.1 environment.....	12

RSS

1. Version 1.4.7 (December 2007)

1.1. environment

- Added GUI to change plot types. 4 plot types are available: Line, Symbol, Histogram, and Column. Issue [1569325]. (SM)
- Added Welcome screen (currently set to CESE survey). (SM)
- Fixed empty printing under certain conditions. (SM)
- Fixed Lock Record action not staying locked. (SM)
- Improved performance in plot legend. (SM)
- Changed the default directory location to "My Documents/cese-1.4" in Windows. (SM)

2. Version 1.4.6 (February 2007)

2.1. environment

- Much better feedback on status of simulation in case of continuous or infinite simulation runs. Issue [1572373]. (SM)
- Added options to highlight parameters that were changed during the simulation run. Issue [1572375]. (SM)
- Added visual hint when model parameters were changed either manually, or due to simulation. This reminds user to save the parameters. Issue [1572375]. (SM)
- Added Report Bug command to the Help menu. Calls web browser and opens bug tracker page. Issue [1569324]. (SM)
- Added Print Options dialog (available via Print Preview) to change visual parameters of the printout. Issues [1569322, 1569321]. (SM)
- Added a number of additional options to printouts, including print legend, title of Results View window being printed, print data and time, footer comment. Issues [1569322, 1569321]. (SM)
- Added export of plots to SVG (Scalable Vector Graphics) format using Apache Batik. (SM)
- Simulation Options dialog does not lose the number of simulations when Single iteration is selected. (SM)
- Refactored data exports for various formats into the separate package. (SM)
- Fixed rendering of plots when data was changed in the table. Issue [1569316]. (SM)
- Fixed rendering of plots when window changed size and plot was not visible. Issue [1569319]. (SM)
- Fixed Print Preview and export of results to PNG and SVG formats when plot view was

- not available. Issue [1569314]. (SM)
- Model export does not create Results View when export selection is empty. Changed the logic of window creation to be faster and more reliable. Issues [1572377, 1572372]. (SM)
- Replaced dependence on Apache Xalan with a built-in Java 1.5 jaxp, reduced the size of distribution package. (SM)
- Model info was changed to make clamped variable selection persistent between model parameters changes, filterings, and loads. Issue [1572163]. (SM)

2.2. models

- Models were recompiled using Java 1.5 compilation target. (SM)

3. Version 1.4.5 (September 2006)

3.1. environment

- Massive fixes for multithreading. Resolved known conflicts between worker and interface (event) threads. (SM)
- Show update manager when a new version is available for download. (SM)
- Added "Save Parameters As" action for specifying parameters file name, and turned "Save Parameters" into simplified quick save. (SM)
- Added recent parameters and record file lists in submenus. (SM)
- Added table for cursors analysis data (tab "Cursors" at the bottom of each Results window) and commands "Append Cursor Data" and "Replace Cursor Data" to add analysis results to the table. (SM)
- "Link to partner" option for cursors - move a pair of cursors together. (SM)
- Autoscroll for cursors - view is scrolled when cursor is moved out of the current zoom range. (SM)
- Added Window list dialog to window list submenu when there are >10 windows on desktop. (SM)
- Autoscale for Y axis in data view. (SM)
- Allowed block selection for data tables (simulation data and cursor data). (SM)
- Fixed cursors appearance on different look and feels. Make MacOS X and Windows users happy. Issue [979177]. (SM)
- Fixed cursors popup menu toggle actions. (SM)
- Prevent cursor flicker when scrolling data view vertically. (SM)
- Fixed NPE-s in the model manager dialog. (SM)
- Additional optimizations in data view and axis. (SM)
- Much faster plots, optimization achieved by precalculating point threshold before main plot loop. (SM)

- Cleaned up JavaDoc warnings in the Ant build. (SM)
- CESE has switched to JDK/JRE 1.5.0 or above. Compilation warnings have been fixed and many libraries updated. Make sure to upgrade your Java runtime. (SM)
- Click on data table header selects column. (SM)
- Cursor horizontal positions are set to use double precision - much more accurate measurements now possible. (SM)

4. Version 1.4.4 (August 2006)

4.1. environment

- Generated native Windows .exe launcher using launch4j. (SM)
- Refactored simulation history. History, display tree selection, and .mdl file name is preserved when models are changed via model selector. (SM)
- Major usability change: model is not reset to the initial state when changed via Model Selector. This makes it easier to switch between models without losing their state. (SM)
- Sweep title in the Legend displays model name. (SM)
- Results View title is set to the model name to improve usability. (SM)
- Results View title can be edited. (SM)
- Added splashscreen to give feedback during startup. (SM)
- Much faster Print Preview. (SM)
- Reduction in data view memory consumption, and improved performance. (SM)
- Major improvements in data axis performance and reduction in memory consumption, especially when scrolling and at high zoom. (SM)
- Replaced rssutil with rome for fetching rss streams. (SM)
- Increased allocated memory size to 512 Mb to prevent OutOfMemory errors. (SM)
- Improved update manager with changelog support. (SM)
- Separated Results View number and title. (SM)
- Increased maximum zoom range to 0.001. (SM)

5. Version 1.4.3 (May 2006)

5.1. environment

- Accommodates changes in CVS environment at Sourceforge.net. (SM)

6. Version 1.4.2 (February 2006)

6.1. commands

- Add a magical variable "record". Its value is initialized with the current record number, useful for calculating e.g., deltas in IVs and such. See ik1_iv.rec for example. (SM)

6.2. environment

- Added column (bar) and histogram plots. For column plot the fill attribute is available for modification/selection from the indexed palette. (SM)
- Table that contains simulation results is now editable. Plot is re-rendered automatically when data are modified. (SM)
- Automatically set cursors into the data lock mode when channel is selected. (SM)
- Persistent display of cursor value during dragging. (SM)
- Data axis now has tooltip showing current range and units. (SM)
- Visually indicate zoom bounds on axis when zooming with mouse in view. (SM)
- Option to Zoom to cursors 1..2 range in data view. (SM)
- Task progress bar displays a list of current tasks in a tooltip. (SM)
- Do not display cursor y values when selected channel is an "x-channel". (SM)
- More robust handling of visualization of invalid data. (SM)
- Major performance improvement for channel selection with mouse click. (SM)
- Report model autoinstallation in task progress bar. (SM)
- Data cursors code cleanup. (SM)

7. Version 1.4.1 (January 2006)

7.1. environment

- Plots are assigned individually for each channel instead of one per DataView. This should permit composition of different plots in one view. (SM)
- Minor bugfixes. (SM)
- Scatter plot symbols are cached in static array. (SM)
- Selected channel indicated by thicker line/symbol instead of color (less confusing). (SM)

8. Version 1.4.0 (August 2005)

8.1. commands

- Added a new clamp segment command: "waveform". It loads a column of ASCII data from an external file and uses the data to create an arbitrary clamping command. Requested by Dr. David Van Wagoner. (SM)
- Main menu has been changed to move everything related to clamping into a separate category "Records". (SM)

8.2. environment

- Added option to check for software updates online. CESE checks the SourceForge file releases RSS feed and informs user whether new releases are available for download. (SM)
- Added simulation history. CESE now keeps a history of all simulation runs for the current model and allows to go back to the previous run if necessary. This helps to correct errors in user input without restarting simulations from the beginning. Original idea by Dr. Frank Starmer. (SM)
- Convenience Zoom In/Zoom Out x2 commands in axis and data view. (SM)
- All parameters setup in the Simulation Options dialog are now stored in the property file and retrieved when CESE restarts. (SM)
- Added an option to turn beeping after simulation off. (SM)
- During the first run CESE clones all the parameter, model, result, records, and cellml directories to the user home directory. This allows us to separate the system-wide CESE installation and personal user settings that are now stored on a per-user basis. (SM)
- CESE now works when installed in a directory, containing space(s) in its name (such as "Program Files" on Windows). (SM)
- Calculate and display deltas for x and y values in the cursor pair. (SM)
- Load models on a separate thread to improve startup time. (SM)
- As a result of implementation of a new rendering pipeline, cursors performance was improved as well. The responsiveness of the cursors dragging does not depend on the number of data traces (channels) in the window anymore. (SM)
- Data visualization engine has been upgraded to utilize a new rendering pipeline. We now render data to the offscreen buffer. All the subsequent redrawing are updated from that buffer. This should improve the redraw performance by several fold, depending on the usage pattern. (SM)

9. Version 1.3.4 (February 2005)

9.1. commands

- "Single-click clamp mode": switch to the clamp mode automatically, after opening of the record file. (SM)
- "Single-click clamp mode": mark the clamped variables in the model property table based on the information in the record file. (SM)
- "Single-click clamp mode": limit the range of the possible record numbers to the number of groups in the current record file. (SM)

9.2. environment

- Warn if no variables are selected in the display tree. (SM)
- Error dialogs display the exception stack trace for debugging and error reporting. (SM)
- Model parameters can be exported to a table of ASCII data. (SM)
- Minor bugfixes. (SM)

9.3. models

- Stimulation parameters and BCL can now be clamped in models. Useful for simulation of restitution curves. (SM)

10. Version 1.3.3 (October 2004)

10.1. environment

- Build system can now update CESE from CVS source code. (SM)
- Result View content can be exported to the PNG image file. This is a convenient way to create screenshots of the result data. (SM)
- Printing of data plots now works properly. The fix for this problem is related to the work done on plot scaling. Plotting now properly supports high-resolution graphics devices, such as printers. (SM)
- Improved data axis code. (SM)
- Fixed lockup problem in the data view. (SM)
- Major rewrite of the Print Preview dialog. Implemented correct zooming using the off-screen image. (SM)
- Changed the way scaling transform works in plots. Custom line width and attributes can now be implemented. (SM)
- Storage model has been improved to better support batch channel inserts. Performance of the data export was improved as the result of the changes. (SM)

10.2. models

- Added the FitzHugh-Nagumo (1961) Model. (SM)
- Removed singularities in the Hodgkin-Huxley, Beeler-Reuter, and Luo-Rudy I model formulations. (FS)
- Fixed repolarisation problem in the Puglisi-Bers Model. (SM)

11. Version 1.3.2 (September 2004)

11.1. environment

- Added background task progress notification mechanism. (SM)
- Beginning of unit test support. Tests are located in \$CESE_HOME/tests directory. (SM)
- Fixed warnings related to unused variables and static access. (SM)
- Data analysis routines (Build I-V, Basic Statistics, Channel Average) have been converted to background tasks with proper notification. (SM)
- Updated Record Editor. (SM)
- Updated JavaHelp documentation. (SM)

11.2. models

- Models are now being built using the Ant script. (SM)
- Removed singularities in the Luo-Rudy II model formulation. (FS)
- Fixed time step and experiment time in the Hodgkin-Huxley Model. (SM)
- Model source code was moved to \$CESE_HOME/models directory. This is was done to cleanly separate models and the environment. (SM)

12. Version 1.3.1 (June 2004)

12.1. environment

- Fixed CESE on non-English default locales. (SM)
- Fixed CESE on MacOS X. Issue [979177]. (SM)

12.2. models

- Added the Hodgkin-Huxley (1952) Model. (SM)
- Updated to the recent MathML-X stylesheet. (SM)

13. Version 1.3 (May 2004)

13.1. environment

- Eclipse Team Set allows rapid project/CVS setup in Eclipse IDE. (SM)
- Ant build script should make source compilation and JavaDoc generation a snap. (SM)
- NetCDF export. (SM)
- Model Manager dialog with Install Model/Remove model, etc functions. This is a beginning of the CellML conversion GUI too. (SM)
- Updated JavaHelp documentation. (SM)

- Work to make CESE Tiger (1.5)-ready. (SM)

13.2. models

- Preliminary support for conversion of CellML models into the CESE/JavaBeans-compatible Java source code. (SM)

14. Version 1.2 (Nov 2003)

14.1. commands

- Improvements to the clamping code -- we now explicitly specify what variable to clamp in record files. This eliminates ambiguity of the old clamping routines. (SM)

14.2. environment

- Further code refactoring -- all CESE classes were moved to `com.javable.cese.*` packages. These include templates for AP models and data exports. (SM)
- Cursors were added -- this permits selection of the region of interest (ROI) and data measurement similar to Axon Clampfit. Expect more features and performance rewrite of cursors in the next release(s). (SM)
- A number of analysis routines were added -- Build I-V (current-voltage relationships and data extraction), Basic Statistics (including peak and slope values extraction), Channel Averaging. Note that CESE remains to be mainly simulation control package, you should consider using commercial data analysis software for any complicated data processing. (SM)
- Sweep manipulations using Sweep Selector -- similar to the Axon Clampfit, only better :). (SM)
- Scatter plot type was finalized. (SM)
- Lots of bugfixes. (SM)
- Feature update release -- lots of new features added/updated, most notably cursors and data analysis routines. (SM)
- Initial (and still incomplete) JavaHelp documentation/manual. (SM)

15. Version 1.1 (Aug 2000)

15.1. commands

- A simple XML Editor is bundled (thanks to the great guys at CERN). Both components of the clamping protocols (records and signals) can be created in this editor (you still need to know what you are doing, though). (SM)

- Records can be tested before usage. (SM)
- Clamp signal framework was finalized (or I just gave up). (SM)

15.2. environment

- Added support for pluggable plots -- different types of plots can be combined in a single view. Line plot is still the only one that used, and beta-version of scatter plot is ready. More plot-types are underway (or implement your own). (SM)
- Zoom out is implemented. (SM)
- Views and axis now have context menus (right mouse button click). (SM)
- Views and axis properties can be changed in correspondent dialogs. (SM)
- Print Preview dialog. (SM)
- Data can be exported into the delimited ASCII and ATF (Axon Text Files) -- you can import your simulation results into the Axon ClampFit now. (SM)
- Simulation dialog is added (it is possible to start a set of simulations with a single click on Start Simulation button -- useful for I-Vs). (SM)
- Improved About dialog :) (SM)
- Plotting framework was refactored and moved into the separate package (`com.javable.dataview`). It's made completely independent from the rest of the program and can be reused in any project that requires 2D plotting abilities. (SM)
- Plotting framework now relies on standard JDK classes more. (SM)
- How channel stores the data and how it stores all visual attributes is now separated using the Decorator pattern. (SM)
- Dramatic increase in the plotting performance (Java2D + smarter use of clipping). (SM)
- Lots of smaller fixes/improvements that I forgot about. (SM)
- This is a first release that is targeted to the general audience. Most of the core components were rewritten and this should provide a stable platform for future updates. Markovian models framework is not final (need a better way of handling models with several Markovian currents) -- you've been warned. (SM)
- Major rewrite of the JavaBean editors/properties framework. It's now much more flexible and is able to provide access to any Java class (in 1.0.2 support was limited to the primitive types, boolean and String). (SM)
- Plotting now utilizes Java2D framework (using `Graphics2D` everywhere). This allows better hardware acceleration (especially in the upcoming JDK1.4), and full access to the Java2D advanced plotting features (antialiasing, clipping, alpha channel, fancy strokes and fills, etc.). (SM)

15.3. models

- Main template class for models
(`com.javable.cese.templates.AbstractAPModel`) got

Runge-Kutta-Fehlberg 5th order ODE solver. This means that all your models can now get access to this solver (simply override `derivative()` method in your class and call `doMarkovian()` once at the every simulation step). It's here mainly for Markovian models (unless you can come up with a better use). (SM)

16. Version 1.0.2 (Sep 1999)

16.1. environment

- This is the first limited "proof of concept" public release of CESE. Most of the critical features were implemented in this version, but framework was not flexible enough which resulted in the major code rewrite in v. 1.1. (SM)