What's new in Coach 6?

Version Coach 6.72 (release February 2016)

Hardware support

- Support of new BT sensors: BT19i Charge sensor, BT24i Low concentration CO_2 sensor (0 .. 5000 ppm), BT63i Photogate, BT70i Radiation Sensor.

Bug fixes

- Wrong image shown on the VinciLab data-logger when working with Coach on a computer.

Version Coach 6.71 (release October 2015)

Video

- Improvement of video support under Windows 10.

Bug fixes

- Problem with triggering on sensor with linear calibration on which the option 'Set to zero' is used.

Version Coach 6.7 (release June 2015)

Hardware support

- Improved **C**LAB driver.
- Support of new BT66i Gas Pressure Sensor.
- New firmware for the CLAB data-logger.

Measurement

- Support of measurements with a built-in Accelerometer of **C**LAB.
- Support of standalone measurements (off-line mode) for **C**LAB

Activities

- New activities in 1. Tutorials of the 'Measurement with CMA **C**LAB' project.
- Improvements of activities in the 'Measurement with CMA **C**LAB'.

Version Coach 6.6 (release February 2015)

Hardware support

- Support of the new CLAB interface.

- Improved the VinciLab driver.
- Support of new BT sensors: BT01 Temperature sensor, BT02 Voltage sensor, BT25i High concentration CO2 sensor (0 .. 100000 ppm), BT36i ECG sensor, BT42i Force sensor, BT47i Exercise Heart Rate sensor, BT55i Motion Detector (for CLAB), BT57i ORP sensor, BT59i Oxygen Gas sensor, BT61i pH sensor, and BT78i Salinity sensor, BT84i Temperature sensor and BT88i Turbidity sensor.
- New firmware for the CoachLab II$^+$ interface, which supports the new analog Motion Detector BT55i (only suitable for new models of CoachLab II$^+$ sold starting from November 2011).

Measurement

- Support of event-based measurement for VinciLab.

Activities

- New project 'Measurement with CMA CLAB' is added to Coach Measurement Projects.

Bug fixes:

- Problem with not displaying OK buttons in some of the Coach dialogs for example in the Function-Fit dialog or the Variable Properties dialog (this problem appears in the older Coach versions when the Windows normal fonts size is set to 125%).

Version Coach 6.52 (release February 2014)

General improvements

- Low level drivers are now digital signed for Windows 8.1.
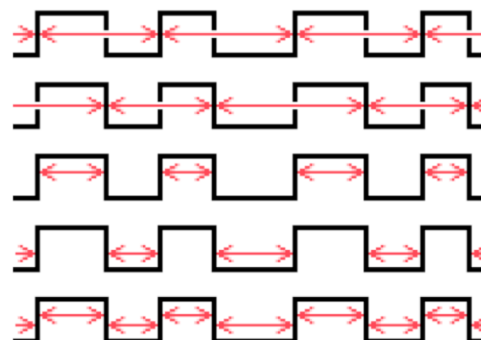
Hardware support

- Improvement of CoachLab II+ driver for older models of the CoachLab II+ interface.
- Support of new ML sensors: ML84m EKG sensor, ML87s Heart-rate sensor and ML90s Anemometer.
- Support of new BT sensors: BT10i Low g Accelerometer, BT11i High g Accelerometer, BT21i Current sensor, BT27i Conductivity sensor, BT29i Colorimeter, Bt34i Dissolved Oxygen sensor and BT82i Spirometer.
- Improvement of measurement with Photogate ML54f (see below).
- Improvement of automatic detection of Colorimeter 03581.

Measurement

- Support of counting measurements with Photogate ML54f. The following photogate ranges are provided now and available under Sensor Range:
  - 0 .. 1000 - to count events (events means change from high (1) to low (0)),
  - 0 .. 2m - to measure a distance when a pulley is attached (it is assumed the distance covered by one spoke is 0.0205 m),
  - 0 .. 25 mL - to measure a volume when a drop counter is attached (it is assumed that the drop value is 0.04 mL).
  - 0 ..1 - to show the state of the photogate, light beam blocked or unblocked.

- Support of time interval measurements with Photogate ML54f. These kinds of measurements are available after selecting CMA MoLab 'Photogate timing' panel in Coach 6.
  Five types of time interval measurements are available under the Sensor Range option (right click of the Photogate icon located on input A of MoLab panel):

  - Time Interval Up-Up (default)
  - Time interval Down- Down
  - Time interval Up – Down (High)
  - Time interval Down – Up (Low)
  - Time interval Up – Down & Down- Up, (High & Low)

  In this activity **only** Photogate ML54f connected to input A of MoLab can be used.

Activities

- New Coach Activity 'Photogate timing' is added to the '1.Tutorials' project.
- New Coach Activity '11b.Neutralization of strong and weak acids with drop counter' and '12b.Acid-base titration with drop counter' added to 'Exploring chemistry' project for MoLab

Bug fixes:

- Coach hangs when no ActiveSync is installed and not MoLab is connected.
- Downloading programs to NXT on Windows 8 64-bits.
- Possibility to use more CO2 Gas sensors simultaneously with CoachLab II+.

Version Coach 6.5 (release November 2013)

General improvements

- The new VinciLab interface is supported.

Video

- The Apple video formats mp4, m4v, 3gp and 3g2 are supported. To be able to use these the newest version of Apple Quicktime (7.7.4) has to be installed.

Modeling

- Coach is adjusted to work also with no Windows line break symbols.

Activities

- New Coach Projects for VinciLab added.

Version Coach 6.43 (release November 2012)

General improvements

- Second vertical axis is painted better.
- Meters/Values can be scaled in proportional way.
- Meters/Value cannot be edited in the Fixed mode.
- RTF texts start always at the beginning after opening an Activity/Result.

Hardware support

- Support for Wireless Acceleration Set (WAC).
- The followings MoLab-related problems are solved:
    - displaying wrong values when changing a range of ML14s Light sensor,
    - crashing when connecting a sensor with data to different input of MoLab,
    - triggering when working with MoLab and ML 54f Photogate.

Measurement and Processing

- Scan box uses larger font.
- Improvement of exponential function fit.

Modeling

- Problem with disappearing initial values when docking/undocking text model window is solved.

Activities

- The old CMA project for €Sense is replaced by a new project for primary science education.

Version Coach 6.42 (release June 2012)

General improvements

- A play button in the title bar of diagrams and tables with data in an activity in which Playback of data as sound is enabled.
- Forward and Next buttons in the title bar of text windows and student text windows to browse to the other texts (if multiple texts are available).
- When using Copy column, the user is asked immediately to provide the name of the copied column via a dialog.
- A repeat function in the Replay dialog (e.g. for demo purposes)
- Some bug fixes and smaller improvements.

Hardware support

- Startup option /X to start Coach with hardware disabled.
- Support for triggering on Motion Detectors
- New CoachLab II+ low level driver

- New CoachLab II/II+ driver for Coach
- Support for 9 new ML sensors.

Measurement and Processing
- Blue browsing arrows in zoomed diagram now have acceleration. Clicking Ctrl + arrow jumps in large steps through the zoomed diagram.
- Support for using the scroll wheel in diagrams:
    - normal scroll wheel: scroll left/right,
    - <Shift>+scroll wheel, scroll up/down,
    - <Ctrl>+scroll wheel: zoom in/out
- The processing dialogs remember their settings.
- The histogram option is redone. Histograms can be filled during a measurement
- For Signal analysis the number of decimals can be specified. When going to SA from a zoomed diagram min/max fields are implemented.
- Visibility of cross-hairs and boundary lines improved
- Selecting in a table is improved.

Data Video
- Defined diagrams become disabled if video points in connections are changed or the video is closed and will come back alive once the points are again defined or a video is opened.

Animation
- Animation element properties can be coupled to a formula.
- Animations react correctly to radians/degrees setting.

Version Coach 6.4 (release February 2012)

General improvements
- Importing and Exporting of sound files like *.wav, *.mp3 and the like.
- In a newly created activity the interface panel is automatically docked in the lower left Coach pane.
- It is now possible to use 'Set to Zero' and 'Set to Value' for a detected sensor icon.
- First measured event with a sensor used as time-interval reports now '-' instead of time interval since pressing Start button.
- Support for internal microphone. A new added panel Internal microphone allows measurement activities for internal microphone. When such activity is executed in Coach 6 then an internal built-in in the computer microphone is used. When such activity is executed in Coach 6 CE running on MoLab then an internal built-in in MoLab microphone is used.
- New firmware updates for the ULAB and CoachLab II^{+} interfaces (purchased after January 2011).
- Bug fix: if grid=on in Processing dialog, this is not carried over to the final diagram.

Hardware support

- Support for the new CMA MoLab data-logger. When connected to the computer MoLab can be used in similar way as other CMA interfaces. Coach Activities for MoLab created in Coach 6 can be copied to the MoLab flash use memory or a user memory card and opened in the Coach 6 CE program. Please notice that any features in the Activities not existing on Coach 6 CE, such as images embedded in texts, videos, background graphs, diagram annotations, etc. will be ignored and will be not shown in Coach 6 CE.
- Support for ML sensors.
- Update of CoachLab II+ driver (a number of bug fixes)
- Update of ULAB driver (a number of bug fixes)
- Bug fix; in Activities for EuroSense light sensors which should show klx show wrongly unit 'lx'

Measurement and Processing

- Bug fix: Crash during the measurement with calculated column and many points
- Bug fix: Fourier Transform in sound file makes Coach stop responding..

Modeling

- Model settings: option to draw relations automatically is now saved.

Data Video

- Bug fix: crash during rotating a video with the radio buttons. · Video filters are now registered correctly.

Animation

- Animation with only sliders and buttons does not slow down model calculation.

Activities

- New projects are added to CMA Coach Projects > Measurements:
  7. Measurements with CMA MoLab – this projects offers exemplary measurement activities for the MoLab data-logger,
  8. Exploring sound – this project offers introductory activities to learn how to use the new 'Playback as Sound' option and exemplary measurement activities for internal microphone.

Version Coach 6.32 (release February 2011)

Hardware support

- Support for the new version (ver.2) of the CoachLab II$^+$ interface (purchased from February 2011). In this new version of the interface is equipped with HID type USB port.

Measurement and Control

- Support for CoachLab II+ Interface (purchased from February 2011).
- Fixed bug that counters did not work in activities with old counters. The threshold value and direction are converted correctly
- Fix: error in flexible mode upon changing measurement settings

- Fix: fatal crash in function fit (a*b^x+c)
- Fix: Incorrect min and max for a new meter quadrant for the clock when the time unit of the activity was not seconds
- Fix: Measurement with 4-bit step motor actuator causes access violation [896]
- Fixed bug that in rare cases contact with CoachLab II+ was lost and Coach could not measure.

Modeling
- New: option to force scientific notation for displaying values (in monitoring mode and in model run dialog)
- New: zoom to fit: determining size when using automatic zoom improved
- New: improved auto-placement of objects
- New: tooltip of a state variable additionally displays its "rate of change"
- New: making connections between model elements is easier
- New: shape of the connector lines stays constant when moving the connection point along the edge of an element
- fix: size of a multiline annotation is determined correctly

Data Video
- New: The perspective rectangle is hidden when opening the option 'Scale' [910]
- Fix: Some options, which did not work when mouse buttons were reversed in Windows (e.g. scaling in Data Video).

Version Coach 6.31 (release April 2010)

General
- Support for Windows Vista and Windows 7 as well for 32-bits as for 64-bits platforms.
- No administrator rights needed for installation of CoachLab Ii+ driver under Windows.
- Bug fixes

Version Coach 6.3 (release March 2010)

General improvements
- The contents of application windows and panes can be directly dragged to other panes (read *I. User Interface, 3.3 Using Coach Panes*).
- Meters and Values are completely renewed. They have dynamical scales, backgrounds etc and users can create their own Meters/Values and possibility to display values from sensors/actuators/variables/formulas (read *I. User Interface, 3.2 Coach Panes*)
- At the end of a run, Meters and Values keep their last value.
- The way Standard and User-define Diagrams/Tables/Meters/Values are created and handled is improved (read *II. Diagrams and Tables, 1. Introduction*).
- Diagrams/Meters/Values are updated when replaying a run.
- Color boxes and droppers implemented.

- The font of Tables can be set (read *II. Diagrams and Tables, 1.5. Diagram/Table settings*).
- Startup switch /d to start multiple instances of Coach 6 (read *IX. X. Authoring environment, 4.7. Starting Coach via command line*).
- All file attachments are incorporated in the activity/result files. Files which are referred to from an activity, like word documents, local websites, etc. are now incorporated in the *.cma/*.cmr file.
- Possibility for library updates by means of small installable patches.
- Updates which do not require updating the clients.

Hardware support

1. New internal software (firmware), for CMA interfaces ULAB, CoachLab II$^+$ and €Lab which offer new measurements features. Detection mechanism and automatic firmware update functionality for CMA interfaces is now build in (read *XI. Utility programs, 2. Firmware Update*). There is not possible to update CoachLab II interface. For this interfaces new measurement features are not available.
1. CoachLab II$^+$ driver supports cyclic use of memory buffer. This means that there is no longer a hardware limit on the number of measurement points for measurement frequencies up to 10,000 Hz.
2. More counters can be connected at the same time to channels of CoachLab II$^+$.
3. Support for €Lab with €Motion as one combined panel. When a panel in Coach is set to CMA EuroLab + EuroMotion then combined measurements with the €Lab and €Motion in one activity are possible.
4. Support for LEGO NXT (LEGO NXT driver should be pre-installed).
5. USB support for Vernier LabPro.

Measurement and Control

- Possibility (for the CoachLab II/II$^+$, €Lab and **U**LAB interfaces) of converting a sensor on an analog input of the Panel to function as a counter, a 1-bit digital meter, a frequency meter or a time-interval meter (read *III. Measurement, 4.3.Using a sensor as counter, 1-bit digital sensor, frequency or time-interval meter*).
- New sensor option - **Set to value**. This option is similar to the option **Set to zero**, instead of zero another value can be typed in *III. Measurement, 4.5. Sensor properties*).
- Time interval channel connection as added to the list of available connections (read *II. Diagrams and Tables, 1.6. Data-range connection types*).
- Clock units are chosen via a menu, and are converted when changed. If the time was displayed in s and the user selects ms, then the values are automatically adapted.
- Possibility of direct measurement of Sound level in dB with CoachLab II+ and €Lab. Sound sensors calibrated as sound level meters can be selected directly from standard Coach Library.
- Logarithmic calibration function is added to calibration function types (read *III. Measurement, 5.2. Advanced calibration*).
- Calibration of native counters via Counter settings dialog is simplified (read *III. Measurement, 4.3.Using a sensor as counter, 1-bit digital sensor, frequency or time-interval meter*).
- Signal averaging can be now applied to measured sensor signal (read *III. Measurement, 4.5. Sensor properties*).

Modeling

- New Process element to model processes like chemical reactions added (read *VI. Modeling, 3.2. Graphical variable symbols*).
- Replay button added. This buttons allows replaying the model execution in the similar way as it is done for measurements.
- Possibility of specifying whether to hide the buttons to change the model to graphical or text. This option is available in the Activity Options only for Authors (read *IX. Authoring environment, 3.3. Defining Activity options*).
- Added min/max fields to variable for better display in Diagrams/Meters (read *II. Diagrams and Tables, 1.6. Data-range connection types*).
- Modified 'delta' function. It has an optional second parameter to indicate whether it should work forward (1) or backward (0) (default) (read *VIII. Coach Language, 5.2. Special mathematical functions*).

Data Video

- Support for de-interlacing of videos.
- Improved rotation of videos.

Animation

- Powerful animation environment allowing illustrating motions from models, programs or sensor data is added (read *VII. Animations*).

Version Coach 6.25 (release March 2009)

General improvements

- Improved QuickTime Source Filter, the MOV files work with the newest version of QuickTime
- New version of the Video Renderer
- Changed ULAB Update program. The program remembers now the latest list of sensors downloaded into ULAB

Hardware support

- Support for 010 €Motion, new USB Motion Detector.
- Support for new sensors in library (since Coach 6.24):
  - 010 €Motion
  - 013i Angle (position) sensor
  - 016i Linear temperature sensor
  - 024i Magnetic field sensor
  - 0364BT Force plate
  - 0628i ECG sensor
  - 0660i High concentration CO_2 gas sensor
  - 0665i Oxygen gas sensor
  - 0666i Radiation sensor
  - Better support for Vernier Drop Counter

Bug fixes

- New icon for Switch Module with corrected state names.

Activities

- New Activities for 010 €Motion.

Version Coach 6.24 (release April 2008)

General improvements

- Improved QuickTime Source Filter, the MOV files work with the newest version of QuickTime
- New version of the Video Renderer
- Changed ULAB Update program. The program remembers now the latest list of sensors downloaded into ULAB

Hardware support

- New drivers for all CMA interfaces.
- New ULAB firmware 2.04.

Bug fixes

- €Lab triggers now also for -10 .. + 10V sensors).
- All CMA interfaces can measure with maximal possible frequency
- Function-fit functions with 4 parameters work again

Version Coach 6.23 (release November 2007)

General improvements

- Improved RTF Text window (improved bullets and numbering)
- Support for *.wmv video files
- Support for *.png images
- New option *Show previous runs* in the Activity Options (tab *Advanced)*. If deselected, then the grey diagrams of previous measurements are not shown in the Diagram pane after starting the measurement again
- Bug fixes

Hardware support

- Support of CMA €Lab and €Sense interfaces.
- Version 6.23 does no longer support the parallel port cable (art nr 0765) for CMA CoachLab I and CMA Crossroads. This version supports only the USB cable (art. nr 0742)
- The installation includes a new firmware for ULAB v2.03.

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