



## **D-Lab 3.72.9253 Release Notes**

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## Changes

We recommend this update to all users of D-Lab Versions earlier than 3.60.9179. When using a Wireless-System, please make sure, that the Version Number of D-Lab and D-Lab Mini is the same.

### New Features

- D-Lab Testing Tool that allows users to try out the Datastream, Data Relay, Task Triggers and AOI State Streaming. In addition it contains a Viewer for D-Lab Log files.
- A Phone D-Lab Connector application to bridge the gap between the SensorConnectApp and the D-Lab Datastream, leading to greatly increased connection stability.
- Changed the search for Tobii Glasses 2 devices to only occur, when the “Refresh Remote Devices” Button (located above the list of Recording Devices) is pressed.

### Fixed

- Eye Tracking:
  - Corrected issue where Gaze-Path could not be created
  - Resolved an error where no pupil detection would occur after switching from Analyzing Mode to Measure Mode
  - Fixed instances of the pupil indicators freezing
- Metrics:
  - Fixed issue where “Time to first Glance” metric wasn’t correctly calculated for task intervals in some special cases
- Marker Detection:
  - Fixed dropout issues between marker detections
  - Non-existent markers are no longer listed among the detected markers
- Audio:
  - Fixed error that caused audio signals to be out of sync with the rest of the recording
  - Eliminated clicking noises during audio replay
  - Corrected replay speed for audio signals
  - Improved echo suppression
  - Synchronized waveform visualization with the replayed audio signal
- Onvif Video:
  - Relative Point Movement commands now turn the Onvif camera the correct way
- General:
  - Improved performance of graph visualizations
  - Fixed some minor issues with Marker- and AOI-Visualizations
- Setup:
  - D-Lab Setup now checks for a valid Microsoft .Net 3.5 installation and requires user action when none can be found (see section “Installation Instructions and Remarks” for more information)

## Known Issues

- General:
  - Aborting export will stop only after the current file is being finished
  - “Separator” and “Decimal Format” are set to default values, after loading and confirming a data stream configuration from a xml file (needs to be set manually).
- Eye-Tracking:
  - Wireless: DG3 is not plug and play. Eye-Tracker must be connected to the Wireless-Box before turning it on.
  - Wireless: Saccades and Fixations are not automatically calculated during download. It is necessary to calculate them manually before they can be used for Eye-Tracking Statistics and Gaze-Path Visualization.
  - Wireless: If no recording is running, D-Lab does not automatically reconnect to D-Lab Mini after going out of range.
- Mobileye:
  - In Analyse Mode: Sign Position and type is showing the upcoming sign instead of the current one
- TobiiGlasses2:
  - Integration does not support Tobii-Firmware 1.16 any more
  - Integration only supports recordings shorter than 50 Minutes
  - Export of Gaze-Video generates Video without Gaze-Circle
  - Audio cannot be imported to D-Lab
  - Import of Tobii-Data does not work properly when recording is stored in a D-Lab subfolder. It is strongly recommended to record the data on study-folder-level and only move the recording to a subfolder after the import.
- Tobii Remote:
  - Export of Gaze-Video generates Video without Gaze-Circle
  - Tobii Pro Spectrum @1200 Hz is not visualized correctly (partially missing Gaze-Indicator)
- Video
  - In case IP-Cameras have been recorded, it sometimes happens, that D-Lab crashes when switching between recordings in Analyse-Mode

## Installation Instructions and Remarks

### Installing D-Lab on the Laptop PC

1. Backup the D-Lab Database (default-location: "C:\Data")
2. Run the D-Lab Setup exe file and follow the instructions on the screen
3. Run D-Lab from the desktop shortcut or by selecting Programs → D-Lab

### Installing D-Lab Mini on the tablet for Dikablis Professional Wireless

1. Run the D-Lab Mini Setup exe file and follow the instructions on the screen
2. Run D-Lab Mini from the desktop shortcut or by selecting Programs → D-Lab Mini
3. When using Surface 4 make sure to start D-Lab Mini before connecting Dikablis

### Installing D-Lab Mini on the DG3 Wireless Box

1. Turn on the Wireless Box and connect it to D-Lab Computer (only Wifi connection, D-Lab is not necessary)
2. The Wireless-Box should show up as network device in the Windows Explorer under 'Network' (As an Alternative type '\\DGWXXXXX' in the address-line of the windows explorer. XXXXX stands for the serial number of the Wireless-Box). It can be used like a harddrive.
3. Copy the new D-Lab Mini Setup file into the folder '\\DGWXXXXX\Update'
4. Turn off the Wireless Box and turn it on again
5. During the startup process, D-Lab Mini will automatically be updated. Please be aware, that it might take a little longer until the Wireless-System connects.

### Important Remarks for the Use of this Version

1. Please ensure that the recording laptop running D-Lab is permanently connected to the power supply while recording
2. Do not close D-Lab Mini while recording data with Dikablis Wireless
3. If the Dikablis Professional glasses are not detected by D-Lab/D-Lab Mini or if the image of the scene camera is black:
  4. Close D-Lab/D-Lab Mini
  5. Unplug the glasses from the PC/tablet
  6. Disconnect the glasses from the power supply
  7. Start D-Lab/D-Lab Mini
  8. Connect the glasses to the PC/tablet
  9. Reconnect power

### Remarks on .Net Framework Installation

The D-Lab Setup automatically detects whether Microsoft .Net Framework 3.5 is installed:

- If it is, the installation will resume as usual
- If not, the Setup stops and will provide you with a link to the Microsoft download page
  - Please download and install .Net 3.5 manually
  - Afterwards, restart the D-Lab Setup exe; The installation will resume and add the missing files that were not installed in the first Setup run

## Previous Versions

### Release notes for D-Lab 3.60.9179.0

Fixed
1. Eye-Tracking: Fixed issue where the Gaze-Path Visualization wouldn't respond
2. Eye-Tracking: Resolved issue with Glance Metrics not being calculated
3. Eye-Tracking: Removed option to choose different Eye Trackers for two eyes of the same Eye-Tracker
4. Eye-Tracking: Compensation of Pupil Detection errors caused by line errors in the image
5. Marker Detection: Improved avoidance of false detections
6. Marker Detection: Matched supported markers between online and offline detection
7. Marker Detection: Changed name of marker "Tokyo" to "Ankara" and name of marker "Budapest" to "Beijing"
8. GPS: Fix in communication with OpenStreetMap servers. GPS Map is working again.
9. General: Now selecting the optimal graphics card for OpenCL calculations
10. General: Upgrade to OpenCV 4.5.1
11. Onvif Video: Movement Direction of PTZ Cameras fixed
New
12. New AI powered online Pupil Detection (for improved detection stability)
13. New AI powered offline Pupil Detection (additional high accuracy mode)
14. Glance-State of defined AOIs can now be streamed via TCP-IP during live view (for Dikablis Essential, Dikablis Professional and DG3)
15. Upgrade of Tobii .Net SDK. Now supporting: Tobii Pro Nano, Tobii Pro Fusion and Tobii Pro Spectrum (up to 600 Hz)
16. Enabled Saccade/Fixation calculation, Gaze-Path Visualization and Gaze Metrics for Tobii remote trackers

### Release notes for D-Lab 3.55.9166.0

Fixed
1. Eye-Tracking: Offline Marker-detection, time-label removed (progress bar remaining)
2. Audio: Introduced an offset correction for Audio-Wave-Visualization (in D-Lab Options)
3. Audio: Fixed several synchronisation- / visualization-issues of the Wave-Visualizations
4. Formular Editor: Fixed Task-Calculation
5. Formular Editor: Fixed "OR"-Operator
6. Export: Export does not fail anymore, if corrupt recordings are selected for export
7. GPS: Open-Street Map Library updated. GPS Map is working again.
8. XSens: Amount of data sent from XSens to D-Lab can now be adjusted via the configuration-file.
9. General: Fixed setup-issue that prevents installation of the DG3 Eye-cam drivers in D-Lab Mini
New
10. Eye-Camera models added to the generic Eye-Tracker in order to support Ergoneers HMD solution

## Release notes for D-Lab 3.54.9114.0

Fixed
1. Eye-Tracking: Scene Cam does not freeze anymore (Freezing Scene-Videos due to timing problems are now restarted by D-lab).
2. Eye-Tracking: Drop-down arrow for Gaze-Path Visualization has been included
3. Eye-Tracking: Subjects without Recording not cause problems anymore when calculating Eye-Tracking Statistics
4. Formular Editor: Use of Operators fixed
5. Video: K-Lite encoder is included in D-Lab Setup. Exported Videos can now be opened with Windows-Media Player.
6. Video: USB-Cameras are now recognized automatically by D-Lab even when connected after D-Lab startup
7. Audio: Audio can now also be recorded from the DG3-Wireless Box (USB-Mic needs to be attached)
8. GPS: It is not necessary anymore to drag Latitude to GPS-Map first, and Longitude second. Order does not matter anymore.
9. General: Scale of Visualizations can now be changed without critical error
10. General: Loading a Datastream-Configuration from a xml-file with incorrect syntax does not cause D-Lab to shut down any more.
New
11. ICA now also works with DG3 and newest Workload RT
12. Tobii Glasses 2 Firmware Version 1.25.4 is now supported by D-Lab
13. Connector Tool integrated to record Motion-Data from MVN Avinda (Xsens) via TCP-IP
14. Maximum age of time-based Glance-Visualizations has been extended (no limit any more instead of 60 seconds)
15. Added an option to show / hide saccade-lines in Gaze-Path visualization

## Release notes for D-Lab 3.52.9017.0

Fixed
1. GPS-Map-Visualization now also shows correct behaviour for western and southern hemisphere
2. GPS Data is now exported with 8 decimals instead of 3
3. It is no longer necessary to deselect / reselect Audio-Sources and Eye-Tracker in the Recording Devices Window (blue checkbox) in order to ensure a reliable recording
4. Fixed Bug that sometimes made it impossible to stop Wireless-Recordings
New
5. Automated D-Lab Mini Update for DG3 Wireless Box
6. Additional LED status for Wireless Box

## Release notes for D-Lab 3.52.8944.0

New
1. D-Lab shows a warning message if a connected Eye-Tracker is not selected for recording.
2. DG3 Wireless Support for D-Lab Mini

Release notes for D-Lab 3.51.8896.0

Fixed
17. Eye-Tracking: Glance Visualizations (Heat-Map / Shadow-Map / Gaze-Path) now working with Markers again
18. Video: Exported Videos from USB-Cameras not choppy any more
19. Video: Visualization of several USB-Cameras now works as intended
20. Video: Timing of exported videos compared to the raw-Videos in D-lab improved (now synchron)
21. Audio: Microphone of the Surface Tablet can now also be recorded with "Audio light / Audio Essential" license
New
22. New Map-Visualization for GPS-Data (for Live-View and Analysis)
23. Readme File after Setup that shows how to enable nVidia as Standard-GPU

Release notes for D-Lab 3.50.8786.0

Fixed
1. Stability Improvements for D-Lab Mini
2. Audio Professional License now works as intended (allows selection of multiple audio-sources)
New
3. Decreased size of D-Lab and D-Lab Mini Installation-Files.

Release notes for D-Lab 3.50.8745.0

Fixed
1. CAN: Bit Start Position of is not saved in Motorola Format
2. CAN: CAN-Data is not correctly interpreted when using Motorola Format
3. Eye-Tracking: Saccades and Fixations are only calculated within AOI
4. Eye-Tracking: Gaze Path visualizes data only on original calibration plane
5. Eye-Tracking: In very rare cases glances towards two different AOI are detected at the same time
6. Eye-Tracking: In very rare cases glances towards two different AOI are detected at the same time
7. Eye-Tracking: Incorrect values in "Percentage Transition Times" when using intersected AOI
8. Eye-Tracking: D-Lab Crashes when Calculating "TimetoFirstGlance" and glance was on the AOI from the beginning
9. Export: Export Files blank when selecting Left or Right Eye-Cam-Frequency
10. Export: Export Files blank when exporting ADTF Data
11. General: Logitech Camera not detected automatically if connected after D-Lab was started
12. General: Audio Device connected to D-Lab Mini cannot be selected as recording Device in D-Lab
13. General: Minor Changes in the Setup-File
New
14. Integration of Dikablis Glasses 3
15. New Pupil Detector for Dikablis Glasses 3
16. Integration of Tobii Glasses 2 Eye-Tracker

17. Connection to Workload RT (ICA)

Release notes for D-Lab 3.45.8219.1

Fixed
1. Export of Raw-Data sometimes generates (partially) empty files
2. Saccades and Fixation are only calculated in Eye-Tracking statistics when an AOI is defined and active
3. Manually defined AOI are not calculated in the Eye-Tracking Statistics
4. First Gaze-Path is not displayed when markers is checked during playback mode
5. Error when dragging Tobii-Remote Tracker into a Glance Visualization
6. X, Y, and Z-Position of traffic signs obtained from MobilEye inaccurate
7. Exception when calculating "Time to First Glance" but Glance already is on AOI from the beginning
8. Recording Tooltip renamed
New
9. Implementation of a tool to stabilize the communication between D-Lab and Motion Capturing Applications (Nexus, QTM). These Applications now also work with Dikablis Professional <u>Wireless</u> .

Release notes for D-Lab 3.11.8012

Fixed
1. Fixed: Exporting several recordings simultaneously may change the length of the export-files compared to exporting the recordings one at a time
2. Fixed: First Fixation of Gaze-Path is sometimes not drawn when using a marker-bounded Gaze-Path
3. Fixed: Disconnecting any audio device from the tablet whilst both D-Lab Mini and D-Lab Master are open has no effect on interface
4. Fixed: Sometimes it is not possible to select any audio devices in the Recording Devices Window (D-Lab Master) which derive from D-Lab Mini
5. Fixed: Dialogs for license issues are not localised (language)
6. Fixed: Visualization Layout sometimes is not saved when switching between Modes (Plan, Measure, Analyse)
New
7. Microphones connected to the Surface can be recorded in D-Lab when using the Wireless Setup

Release notes for D-Lab 3.11.7943

1. New Option "Maximum Marker Detection Gap"
2. Added cancel button for "Calculate Glances"
3. Added cancel button for data export
4. Added MobilEye data: traffic signs, lane distance and lane data
5. Added visualization "Gaze Path"
6. Closing a session sometimes closed D-Lab
7. Exporting dialog now obeys user selection
8. Deviant product version numbers
9. Removed empty Bee Swarm options



10. Remote eye tracker now is selected after reconnecting
11. Field cam video decoding is optimized
12. Export shows warning before overwriting existing data
13. User created calibration plane is selected by default
14. Save configuration of Data Relay
15. Renamed eye tracking option "Is Blink"
16. Separate setup namespace for D-Lab Mini
17. Improved Heat Map performance

Release notes for D-Lab 3.10.7757

1. Solved Dikablis Wireless reconnection issue (after leaving and entering again the wifi area)
2. Corrected PERCLOS computation algorithm for task based statistics
3. Corrected percentage of transition time metric
4. Solved scripting language crash when saving data channel as a task
5. Improved performance for statistics calculation and data export
6. Solved issue that eye tracking data export files are empty in some cases
7. Solved issue that saccades with length of one frame were not displayed
8. Dikablis Essential plug and play functionality is working again
9. Solved issue that pupil adjustment "is blink" functionality is not working if "only within tasks" is selected
10. Live display of saccades and fixations available in different visualisations
11. Solved issue that calibration adjustments cannot be deleted from processed calibration planes
12. Corrected link value probability metric
13. Implemented usage of CAN data in the scripting language
14. Added support for Motorola format for CAN data
15. Solved issue that the glance time lines did not correspond to the player data (not a computation bug, error was in the time line display and zoom control)
16. Solved issue that the time line for saccades and fixations is not updated when switching between recording
17. Added warning message when the user selects task dependent recording
18. Added confirmation dialog when the data export overwrites already exported data
19. Solved issues caused by installing by mistake full D-Lab on the Tablet instead of D-Lab Mini
20. Improved force stop recording functionality for Dikablis Wireless

Release notes for D-Lab 3.01.7550

1. Implemented motion tracking interface for Dikablis Professional (monocular version)
2. Solved Dikablis Essential image freezes (issue caused blocking of all USB ports)
3. Improved Dikablis Wireless connectivity (solves the issue that the tablet is not reconnected to the laptop when going out and in of the wifi area)
4. Solved study export issue caused when trying to export studies containing crashed videos
5. Redesign of data export functionality (master for the data frequency is the frame time stamp now)
6. Redesign of relay functionality (master for the data frequency is the frame time stamp now)
7. Improved offline calibration for eye tracking data <ul style="list-style-type: none"> <li>a. allow deletion of all wizard calibrations in the processed planes</li> <li>b. solved issue that when canceling automated detection 0% detection is displayed</li> <li>c. task selection is disabled when "only within tasks" is not selected</li> <li>d. deleted calibrations are now applied without the necessity of reloading the recording</li> </ul>

8. Improved memory usage and performance through the entire application. Limited size of working memory for the database.
9. Solved issue that ONVIF videos are recorded with time lag due to ONVIF pause mode
10. Computation of saccades and fixations was revised, added saccade angle, improved data consistency between Data Session Explorer and online available data
11. For Dikablis Wireless, the case that the glasses are disconnected while recording was handled. Data is now available until the moment the glasses are unplugged.
12. Solved issue that eye data is not recorded when using task dependent recording
13. Solved offline marker detection issue (missing refresh after running offline detection). Also solved issue that sometimes only detection is not working
14. Solved issue that recorded data is not available in the Data Session Explorer
15. Added CodeMeter Runtime 5.21b to the D-Lab setup
16. Added CAN statistics functionality
17. Solved issue that the time line visualisation of saccades and fixations is slowing down the system

Release notes for D-Lab 3.01.7029

1. Fixes for glance computation on AOIs and for the eye tracking statistics <ul style="list-style-type: none"> <li>• AOI is now coloured if glance is in AOI but outside the visible area</li> <li>• Solved mismatch between gaze time lines and player view</li> <li>• Solved eye tracking statistics issue that wrong gaze channel was used for computations</li> </ul>
2. Solved issue that recorded data sessions are not displayed if one of the recordings is inconsistent
3. Solved issue that encryption is slowing down the performance of D-Lab
4. Added functionality to avoid the accidentally deletion of already marked tasks

Release notes for D-Lab 3.01.6865

5. Fixed glance computation freeze for large number of recordings
6. Fixes for manual and automated offline pupil adjustment
7. Improved wireless connectivity
8. Measure license now also contains the Plan module

Release notes for D-Lab 3.01.6825

1. Added GPS functionality
2. Redesigned data export
3. Solved “crunched AOI” issue
4. Solved Dikablis Wireless connection issue when going out of the wifi range and coming back
5. Solved issue that pupil correction is not applied if adjustment is made for the first frames of the recording
6. Solved network task issue that caused the application to crash when the second recording was started
7. Improved study upgrade functionality

Release notes for D-Lab 3.01.6721

1. Heat map, shadow map and bee swarm functionality available in analyse mode
2. Supports upgrade of D-Lab 3.0 studies starting with D-Lab version 3.0.4633
3. Calibration improvements for Dikablis Essential and Dikablis Professional
4. Solved crashes related to GUI modifications (changing size or docking windows)
5. Solved issue that recording cannot be stopped when one of the recorded devices is disconnected while recording
6. Added support for tobii remote trackers
7. Added support for decoding decimal numbers in the CAN configuration
8. Revised is blink, calculate glances and eliminate blinks functionalities
9. Solved issue that manual adjustment of marker bounded AOIs was not possible
10. Solved issue that glances on manual AOIs were not visible
11. Configuration of state and value diagrams is stored automatically when closing D-Lab
12. Support for exporting Dikablis videos in blending mode
13. Task based export of Dikablis videos
14. Solved issue that orientation of the marker coordinate system differs between online and offline detection
15. Usability improvements like: playback of local data allowed before downloading wireless data, added view possibility for derived operators in the scripting language, improvements in the configuration of generic eye trackers.

Release notes for D-Lab 3.01.6549

1. Solved pupil adjustment related crashes due to duplicate dictionary entry
2. Solved crashes related to calibration planes caused if wireless data is downloaded after other recordings were already processed
3. Fixed crashes caused by GUI controls when opening a study. The crashed visualisation is being automatically reset
4. Implemented access to gaze in marker coordinates in Analyse mode and export of the gaze point in marker coordinates
5. Solved Wireless download issue in case of virtual networks
6. Added D-Lab Mini power plan that is automatically being used when D-Lab is running. The power plan avoids powering down or setting the tablet in standby mode while D-Lab Mini is running and configures the performance settings necessary for recording on the tablet. After closing D-Lab mini the standard windows power plan is used again
7. Added header and time stamp to the relay functionality
8. Added automatic data refresh after pupil adjustment
9. D-Lab Mini Turn Off button also active while recording
10. Improved synchronisation of CAN data
11. Minor improvements like progress bars, saving configuration of state and value diagrams, GUI improvements in the scripting language functionality
12. Fixed crashes related to disconnected IP cameras in live mode and while recording

Release notes for D-Lab 3.01.6359

1. Improved recording performance (D-Lab Mini) and live views (D-Lab) for Dikablis Wireless
2. Improved recording performance for D-Lab
3. Solved data download issues from the tablet for Dikablis Wireless
4. Corrected auto focus settings on D-Lab Mini
5. Corrected pupil detection percentage
6. Corrected handling of subject AOI
7. Improvements in manual and automated pupil adjustment
8. Corrected the layout of the eyes in the eye tracker visualization
9. Corrected display for gaze in marker coordinates
10. AOIs displayed independent of the calibration plane they belong to
11. Fixed export of eye tracking video